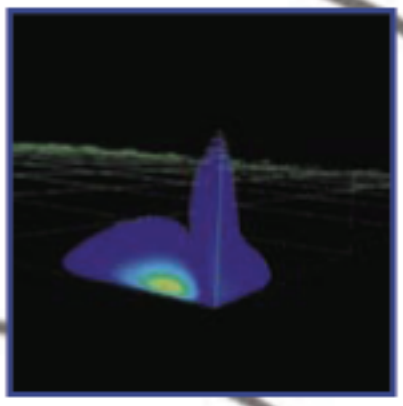
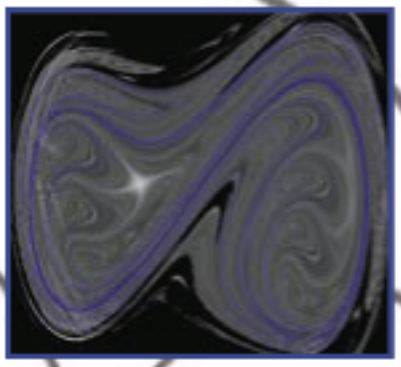
THEORETICAL DIVISION
at Los Alamos National Laboratory

Annual Self-Assessment 2004–2005

LA-UR-05-2732 April 2005





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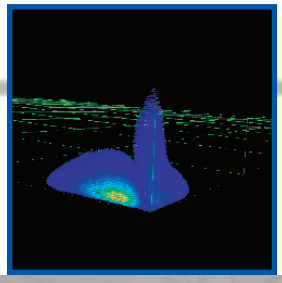
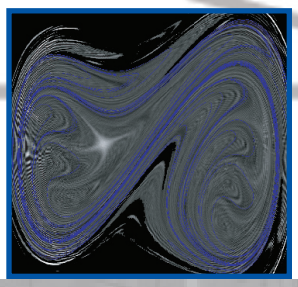


About the Cover

Our cover shows a few images from our research in 2004–2005.

The figure on the left shows the radial part of the ground state of lithium on a 3-D lattice. This ground state represents the starting point for the real time propagation. For more information, see the paper "Time-Dependent Studies of Photoionization of Light Systems: Beyond Two-Electron Systems," by James Colgan (T-4) on page 20 in Theoretical Division Research Highlights 2005, A Supplement to the Division Annual Self Assessment (Research Highlights 2005).

The middle figure shows the classical manifold structure superimposed on the quantum Wigner function. For more information, see the paper "Semiclassics and Topological Aspects of the Quantum-Classical Transition," by Salman Habib (T-8), Benjamin Greenbaum (Columbia University), Kosuke Shizume (University of Tsukuba), and Bala Sundaram (City University of New York) on page 100 in Research Highlights 2005.

The figure on the right shows a photograph of the Advanced Industrial Computer, Inc., PC Hot-Swap Chassis (Parallel ATA and Serial ATA) as discussed in the paper "Software Technology to Enable Reliable High-Performance Distributed Disk Arrays," by Michael S. Warren, Chris L. Fryer, M. Patrick Goda, and Ryan Joseph (T-6) on page 70 in Research Highlights 2005.

Theoretical Division Annual Self-Assessment 2004–2005

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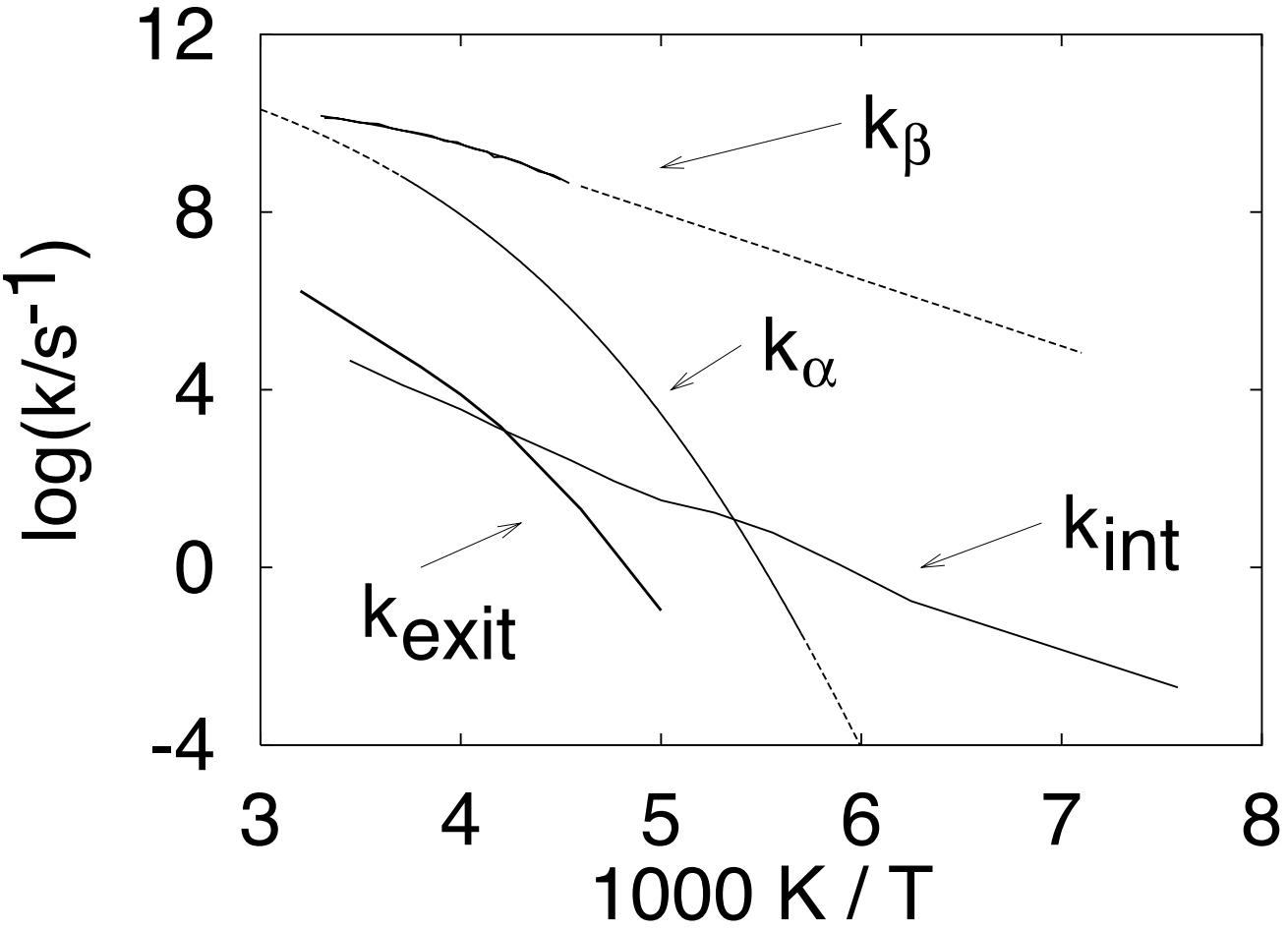
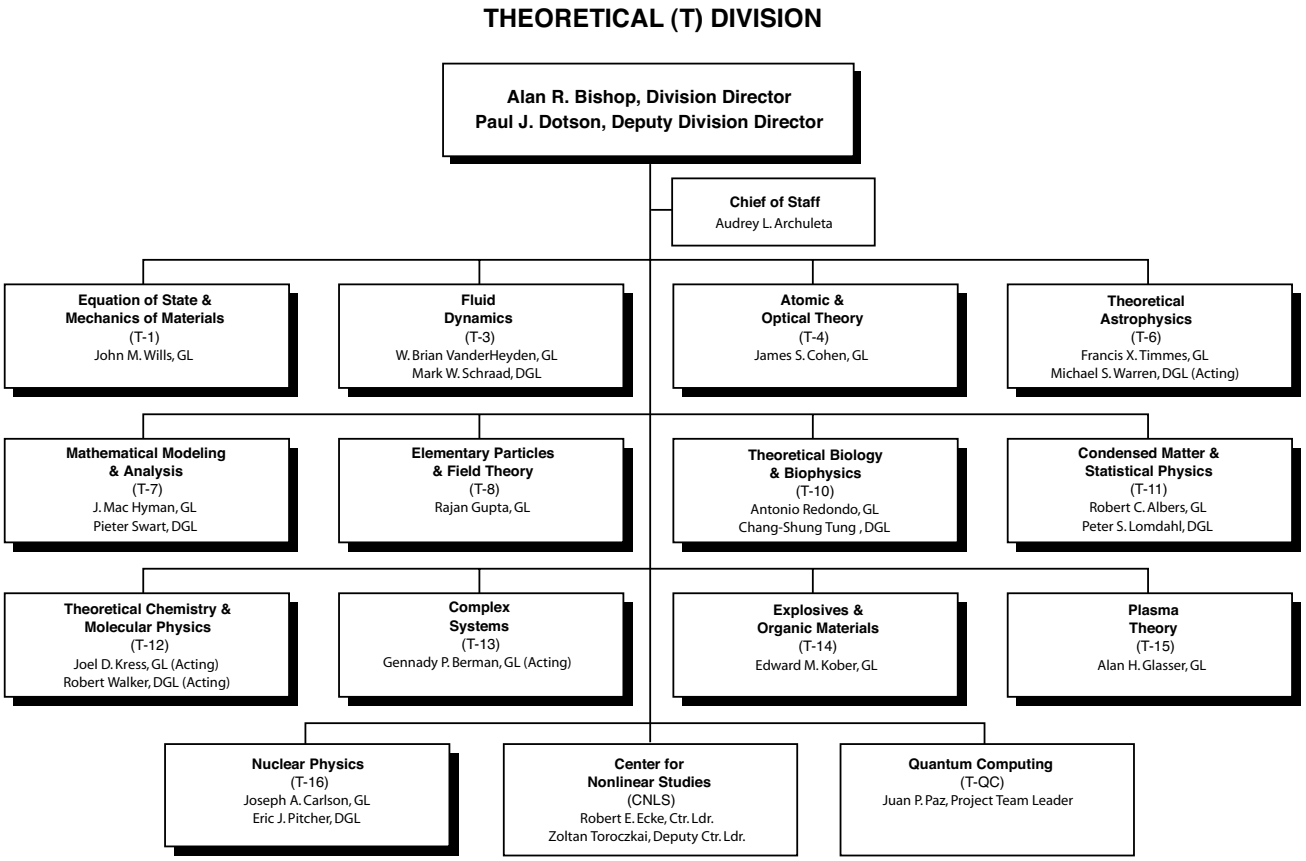


ORGANIZATIONAL SUMMARY

The mission of the Theoretical (T) Division is to perform theoretical research to further our scientific understanding of the physical world; to establish a technical foundation for current and future defense, civilian, and industrial needs; and to explore interdisciplinary frontiers of scientific endeavor.

In addition to participating in large Los Alamos National Laboratory projects, the Theoretical Division nurtures smaller projects for their intrinsic scientific and technical interest to the Laboratory and the Nation. A major role of the Theoretical Division is that of innovator and incubator for future technical directions of the Laboratory. Frequently these projects reach a level of development that attracts significant program funding and has, in the past, led to the establishment of new divisions.

The activities of the 13 groups, the Center for Nonlinear Studies, and the Special Projects Office span much of theoretical science. Because of the breadth of the Division's work, essential contributions are made to each of the Laboratory's core competencies and strategic goals as demonstrated by the activities of the groups.



Theoretical Division Office/Special Projects Office-Quantum Computing (T-DO)
Division technical staff are engaged in special projects that do not organizationally fit into an established group in the Division. A major effort is the study of the transition from quantum to classical ("decoherence") physics, and the study of quantum-based information and computing and their associated technology, closely coordinated with the Los Alamos Quantum Institute. In addition, technical staff members carry out research in relativistic heavy ions, high-spin states in nuclei, neutron physics, electronic and structural materials, and nonlinear science. **Technical staff includes: 7 Technical Staff Members (including 2 Senior Fellows and 4 Fellows), 2 Limited-term Technical Staff Members, 1 Postdoctoral Associate, and 2 Graduate Research Assistants.**

Equation of State and Mechanics of Materials (T-1)
T-1 develops theory and computational models to describe the Equation of State and Mechanics of Materials (EOS/MOM), including, but not limited to, materials of interest to nuclear weapons, and implements these models in computer codes that contribute in particular to the SESAME Equation-of-State and Materials Properties Library, which is maintained by T-1. The group has an active research program outside the EOS/MOM program developing theory, methodology, and calculation to support and enhance that program, funded by sources both internal (Laboratory Directed Research and Development) and external (Department of Defense, Advanced Fuel Cycle Initiative, and others) to the Laboratory. Relevant areas of research include strong electron correlation; actinide electronic structure; first-principles prediction of mechanical and thermodynamic properties of multicomponent materials; multiphase EOS theory; microscopic, mesoscopic, and continuum-level mechanical behavior of materials; Direct Numerical Simulation of materials properties; energetic materials; grain growth phenomena; and order-N numerical techniques for electronic structure calculation. Capability developed in support of EOS/MOM is used to support related programs such as Pu aging studies and other projects in the nuclear and conventional defense communities, civilian research communities, commercial applications, and threat reduction. **Technical staff includes: 13 Technical Staff Members (including 1 Fellow), 4 Limited-term Technical Staff Members, 4 Postdoctoral Associates, and 1 Graduate Research Assistant.**

Fluid Dynamics (T-3)
T-3 staff members are involved in modern hydrodynamic theory, materials modeling, and computational simulations. There is an emphasis on coupling advanced numerical methods for fluid dynamics at all flow velocities with models for other processes, including chemical reactions, phase change, heat and mass transfer, plasma behavior, constitutive properties of structural materials, and combustion. Advanced models and methods are incorporated in fully functional 2- and 3-D computer simulation codes and implemented on the full spectrum of computing hardware from high-performance workstations to massively parallel supercomputers. Current application areas include nuclear and conventional weapons, internal combustion engines, structural materials, process chemistry for the oil and gas industries, ferrous metals and chemical industries, models for casting, and circulation models for the global ocean. **Technical staff includes: 27 Technical Staff Members, 1 Limited-term Technical Staff Member, 2 Postdoctoral Associates, and 2 Graduate Research Assistants.**

Atomic and Optical Theory (T-4)
T-4 staff members develop methods for and perform calculations of atomic structure, scattering cross sections, opacities, exotic atoms, and quantum and nonlinear optics, including effects of high energy-density environments and interaction with external electromagnetic fields. Current efforts include the evaluation of opacities for a wide range of physical conditions, nonequilibrium kinetics, quantum molecular dynamics simulations of dense plasmas and shocked hydrocarbons, hohlraum spectroscopy, plasma sources of x-ray ultraviolet radiation, strong-field ionization and scattering, decoherence and chaos, quantum computing, and Bose-Einstein and Fermion condensates of cold atoms. The group provides interactive web sites for user calculations of opacities of mixtures and for calculations of atomic structure and cross sections. It also organizes and partially sponsors the annual Los Alamos Summer School for undergraduate students in physics. **Technical staff includes: 7 Technical Staff Members (including 1 Fellow), 4 Limited-term Technical Staff Members, and 8 Postdoctoral Associates.**

Theoretical Astrophysics (T-6)
T-6 staff members are involved in (1) studies of stellar evolution including supernovae, intermediate mass stars, nucleosynthesis, and oscillations; (2) nuclear physics and its applications; (3) large-scale structures in the universe; (4) relativistic astrophysics involving compact objects such as white dwarfs, neutron stars, and black holes; (5) comets and asteroids in the solar system; and (6) planetary interiors and evolution. The group has considerable strength in computer and computational science issues underlying multidimensional simulations and the analysis of massive data sets. T-6 is exceptional among theoretical astrophysics organizations across the Nation in its explicit emphasis on connecting fundamental science to national needs and Laboratory missions. **Technical staff includes: 8 Technical Staff Members (including 1 Fellow), 3 Limited-term Technical Staff Members, 5 Postdoctoral Associates, 3 Graduate Research Assistants, and 4 Undergraduate Students.**

Mathematical Modeling and Analysis (T-7)
T-7 combines the strengths of applied mathematicians, mathematical physicists, and numerical analysts to derive, analyze, and solve mathematical models of complex problems. Its mission is to conduct forefront basic and applied

research in mathematical modeling and analysis, provide theoretical leadership and support for the Laboratory and other programs of national interest, and to furnish an effective interface with academic science. In accordance with this mission, T-7 maintains its multidisciplinary, but highly mathematically oriented character, by supporting a strong applied research effort that is grounded in basic research. The applied mathematicians in T-7 have made substantial contributions in solving large systems of linear and nonlinear equations, in the theoretical and numerical solutions of nonlinear partial differential equations, in modeling the long-time predictability of ocean dynamics, in nonlinear optical transmission lines, in the applications of wavelets, in applied stochastic modeling and deriving effective parameters for homogenizing multiscale problems, and in the mathematical modeling of disease transmission and pattern formation in biological systems. **Technical staff includes: 8 Technical Staff Members, 11 Limited-term Technical Staff Members, 6 Postdoctoral Associates, 6 Graduate Research Assistants, and 1 Undergraduate Student.**

Elementary Particles and Field Theory (T-8)
T-8 conducts research in particle physics, both on the standard model of electromagnetic, weak and strong interactions, and on theories that extend it. This includes a strong program in computational quantum chromodynamics to calculate the hadron spectrum, quark masses, and weak matrix elements, especially those that are required to quantitatively understand the experimentally observed CP violation. There is a significant effort to elucidate the structure of theories that invoke supersymmetry and extra dimensions. Cosmology, particle-astrophysics, gravity, and large-scale structure of the universe are growing activities in the group. Fundamental issues of quantum field theory forms another key focus of research, especially in the arena of systems far from equilibrium and the study of long-distance structure of quantized gravity. Multidisciplinary efforts include studies at the interface of elementary particle physics, nuclear physics, and astrophysics; application of scaling ideas to biological and ecological systems; the study of viral evolution with an eye to understanding and controlling the AIDS epidemic; and studies of the formation and evolution of structure in the universe. Efforts in quantum science and technology include understanding the emergence of classical behavior from underlying quantum dynamics and designing feedback control for quantum dynamical systems. Computational science is a major thrust area, with applications to scaling theory to stochastic equations for nonequilibrium dynamics, modern dynamical systems theory for accelerator design, and the study of biological systems. This group maintains close ties with experimental efforts in neutrino physics and astrophysics, satellite tracking, cosmological surveys, and has made a major contribution to the production and trapping of anti-hydrogen. **Technical staff includes: 6 Technical Staff Members (including 1 Fellow), 1 Limited-term Technical Staff Member, 4 Postdoctoral Associates, 8 Graduate Research Assistants, and 1 Undergraduate Student.**

Theoretical Biology and Biophysics (T-10)
T-10 focuses on the modeling of biological systems, molecular modeling, and the analysis and informatics of molecular and cellular biological data. Its activities reflect the needs both to further our understanding of living systems at the cellular and molecular levels and to improve the Nation's health and economic welfare. T-10 is one of the few research groups in the world devoted to mathematical modeling and computational analysis of problems in cellular and molecular biology. T-10 has created and is responsible for the maintenance of the HIV, HCV (Hepatitis C virus), and Influenza Sequence Databases, as well as the HIV Immunology Database and the HIV Resistance Database. Research efforts span a number of topics including understanding dynamics and treatment of viral diseases such as HIV, influenza, and hepatitis; immune system modeling; receptor-ligand interactions and cell signaling; computational aspects of the human genome initiative; pattern recognition in DNA sequences; high-performance computational studies of macromolecular structure and dynamics; RNA structure; membranes and membrane proteins; protein function and dynamics; and protein folding. **Technical staff includes: 13 Technical Staff Members (including 2 Senior Fellows and 1 Fellow), 6 Limited-term Technical Staff Members, 7 Postdoctoral Associates, 8 Technicians, 3 Graduate Research Assistants, and 2 Undergraduate Students.**

Condensed Matter and Statistical Physics (T-11)
T-11 conducts research in condensed matter theory including electronic, structural, and transport properties of metals, semiconductors, compounds and alloys; microscopic modeling of materials properties and textures; fundamental studies of nonlinear and nonequilibrium systems; quantum field theory and algebraic approaches to statistical mechanics and materials physics; investigations of the properties of heavy fermions, high-temperature and organic superconductors and other strongly correlated electronic systems; phenomenology and other aspects of layered anisotropic superconductors; development of advanced algorithms for scientific computing (e.g., quantum Monte Carlo, molecular and Langevin dynamics involving multiple time and length scales) and the development of visualization tools for large data sets; magnetoresistance in perovskites; Ginzburg-Landau models of elastic, martensitic, and displacive phase-transformation

materials; microscopic aspects of shock waves in materials; aspects of quantum information related to condensed matter systems; device physics; nanophysics and nanotechnology; and applications of condensed matter physics to soft matter (polymers, organics, and biomaterials). **Technical staff includes: 11 Technical Staff Members (including 2 Fellows), 5 Limited-term Technical Staff Members, 9 Postdoctoral Associates, 3 Graduate Research Assistants, and 1 Undergraduate Student.**

Theoretical Chemistry and Molecular Physics (T-12)
This group is staffed by theoretical chemists and physicists who work on projects aimed towards an improved understanding of the behavior of matter. Generally, projects seek to describe how basic forces operating at the atomic, molecular, and mesoscopic level manifest themselves in the properties of matter at more macroscopic scales. Current activities include research both in gas-phase and condensed-phase phenomena and projects apply state-of-the-art computational approaches in fundamental and applied studies of the physics and chemistry of molecules and materials. Research projects include the development and application of techniques for calculating the electronic properties of molecules, the dynamics and kinetics of chemical reactions, atomistic simulations of materials, molecular modeling of catalysts, the study of solute-solvent interactions, and chemical and biological process modeling. **Technical staff includes: 13 Technical Staff Members (including 2 Fellows), 3 Limited-term Technical Staff Members, 9 Postdoctoral Associates, and 2 Graduate Research Assistants.**

Complex Systems (T-13)
T-13 creates new methods for solving complex problems and applies them to problems at the forefront of technology. This group also initiates and coordinates work on complex systems throughout the Division. Incomplete knowledge of the factors that govern the behavior of complex systems leads to the need for a probabilistic description. In keeping with this fact, T-13 has a strong program in several branches of statistical physics. This work includes complex networks, statistical fluid dynamics, with application to turbulent and multiphase fluid mixing, granular flow, and modeling of fluid flow in petroleum reservoirs. Each of these efforts has a theoretical and computational component, which is also closely tied to experiment. Another strong effort involves the modeling of laser-matter interactions for inertial confinement fusion studies. A vigorous program on uncertainty quantification addresses the problem of assigning error bars or confidence levels to predictions based on large-scale simulations. Computational and theoretical work on complex biological systems is represented by research on the spread of influenza, recognition mechanisms for protein-DNA binding, control of transcription, and regulation of gene expression. Modeling and simulation of nanodevices and large quantum computers is also an active area of research that has attracted wide interest. **Technical staff includes: 11 Technical Staff Members, 1 Long-term Visiting Staff Member, 2 Limited-term Technical Staff Members, and 6 Postdoctoral Associates.**

Explosives and Organic Materials (T-14)
The group is involved with the modeling and prediction of the properties and response characteristics of explosives and other organic materials, particularly polymers. A majority of the work is funded by the nuclear weapons program and has direct impact on both stockpile certification calculations and the design and analysis of experiments for validation purposes. Within that context, T-14 strives to obtain fundamental understanding of the various processes involved and connect them together with appropriate multiscale modeling programs. This group interacts strongly with other groups within the Division, Laboratory, and universities to accomplish this goal. Topics of general interest are the mechanical and reactive behavior of organic crystals and polymeric materials, ignition and detonation characteristics of explosive formulations, and how detonation and explosion waves interact with other materials. Included within the group is expertise in hydrodynamics and shock interactions, reactive flow simulations, equations of state for organic materials, molecular modeling with classical and quantum mechanical methods, micromechanical simulations, and material response characterization. Current projects include studies of the initiation and burn processes in damaged and intact explosive materials, advanced energetic equations of state, response characteristics of composite polymeric materials, and the prediction of materials and chemical reaction properties with molecular modeling. These efforts support advanced defense applications, including nuclear and counterterrorism programs. **Technical staff includes: 8 Technical Staff Members, 2 Limited-term Technical Staff Members, 3 Postdoctoral Associates, and 3 Graduate Research Assistants.**

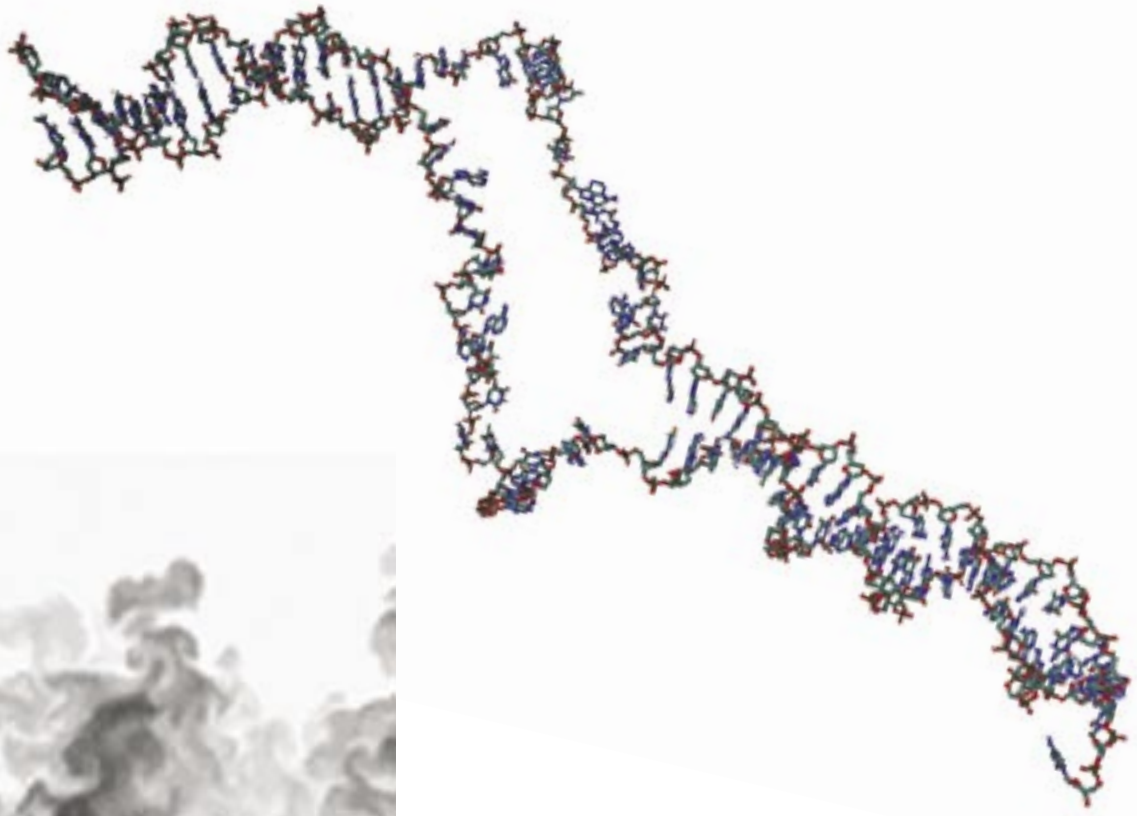
Plasma Theory (T-15)
T-15 studies the theory of the fourth state of matter (after solid, liquid, and gas), plasma, or ionized gas. Most of the matter in the universe is in the plasma state: flames, fluorescent lights, the earth's magnetosphere, the sun, the stars, nebulae, thermonuclear explosions, plasmas confined in magnetic fields for magnetic fusion energy, and plasmas used for industrial processing. Because plasmas are ionized and carry electric currents, they interact strongly with electromagnetic

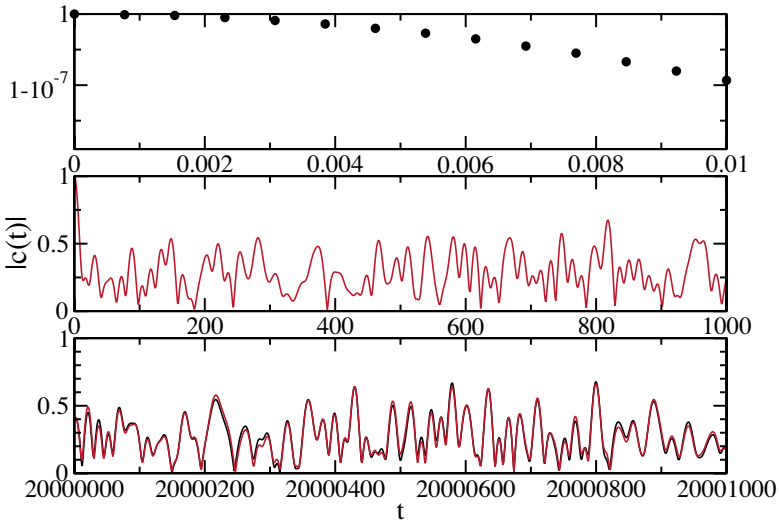
fields. This group studies the basic properties and collective motions of plasmas and electromagnetic fields. A major activity is development of efficient, parallel computer codes for the modeling and simulation of plasmas, using both fluid and kinetic descriptions. Numerical simulation of magnetized plasmas is particularly challenging because of the high degree of anisotropy and large range of length and time scales. Some codes developed by T-15 are in wide use throughout the U.S. magnetic fusion community, including the NIMROD toroidal simulation code, the DCON code for rapid determination of the stability of axisymmetric toroidal plasmas, and the CHIP code for modeling helicity injection into tokamaks. Other more powerful codes are under development using advanced numerical methods. Another topic of interest is astrophysical plasmas, particularly the behavior of plasmas undergoing magnetic reconnection, and their role in the evolution of active galactic nuclei. A relatively new and rapidly growing area of emphasis is the study of strongly coupled plasmas of interest in high energy-density physics. **Technical staff includes: 7 Technical Staff Members, 1 Limited-term Technical Staff Member, 4 Postdoctoral Associates, and 6 Graduate Research Assistants.**

Nuclear Physics (T-16)
T-16 staff members study nuclear reaction mechanisms, nuclear structure, and provide nuclear data to the Laboratory and Nation. Current efforts include the modeling of neutron and charged-particle cross-sections and spectra (including reactions on isomers and nuclides off the line of stability); improvement of fission theories and models of high-energy heavy ion reactions; developing sophisticated codes and libraries for transmutation and radioactivity calculations; high-energy scattering and cascade models; nuclear data processing and testing for use in radiation transport codes; performing exact calculations of few-body systems; the study of chiral symmetric perturbation theory; the production and decay of hypernuclei; structure of exotic nuclei and hadrons; and experimental implications of proposed new fundamental physical interactions and fundamental symmetries and violations thereof, with an emphasis on neutrino physics, CP-violation, and rare decays of mesons. Applications include nuclear weapons design, proton radiography, counterproliferation, astrophysics, advanced fission and fusion reactor analysis, radiation shielding, radiotherapy, accelerator-driven systems and power sources for space satellites. **Technical staff includes: 14 Technical Staff Members (including 2 Fellows), 4 Limited-term Technical Staff Members, and 5 Postdoctoral Associates.**

Center for Nonlinear Studies (CNLS)
CNLS identifies and studies fundamental nonlinear and complex problems and promotes the use of the results in applied research. It stimulates interdisciplinary research and information exchanges inside and outside the Laboratory and provides a Laboratory focal point for collaboration with academic and other centers of excellence in nonlinear science. CNLS disseminates recent developments in nonlinear science and introduces students and postdoctoral researchers to this subject. The Center achieves these goals by hosting and co-hosting conferences and workshops; through extensive visitor, postdoctoral, and student programs; and through interactions with Laboratory staff. The major research areas include networks research with applications to biology, information science and agent-based systems, biological physics, statistical physics and nonequilibrium statistical mechanics, turbulence, condensed matter physics (both soft materials and electronic properties), and computer science. **Technical staff includes: 2 Technical Staff Members (including 1 Fellow), 19 Postdoctoral Associates, and 2 Graduate Research Assistants.**

Division Scientific Thrusts





DIVISION SCIENTIFIC THRUSTS

Scientific thrust areas are an integral component of the T Division Strategic Plan. They identify areas where the Division can make significant scientific and technical contributions to the Laboratory mission, and are used to focus scientific and managerial resources on areas that will provide a significant return on investment in new science, programs, and recruitment. The current thrust areas are:

- Science-Based Prediction for Complex Systems, including:
  —Innovative Science in Support of Stockpile Stewardship (including a developing thrust in High Energy-Density Physics) and
  —Predictive Science and Technology for Threat Reduction and Homeland Security.
- Modeling Biological Processes
- Fundamental Processes (including a developing thrust in Astro-Nuclear-Particle Physics)
- Advanced Scientific Computing Research

Science-Based Prediction for Complex Systems

Coordinating and supporting T Division's response to Laboratory Strategic Goal A, Science-Based Prediction for Complex Systems, is critical given that virtually every major initiative at the Laboratory—from stockpile stewardship to the network analysis of living organisms—relies heavily on Goal A elements. To accomplish its National Security missions, the Laboratory has assembled its core expertise in the integration of experiment, theory, and computation to advance scientific understanding of and predictive capabilities for complex phenomena. This strategy will require a new generation of major ideas and concepts to improve the fidelity, reliability, and usability of the tools for predictive science. The following examples are illustrative of implementation goals.

Nuclear Weapons. T Division research in nuclear and atomic physics, materials science, hydrodynamics, and uncertainty quantification is used in the Laboratory's Applied Physics (X) Division design and certification programs. Science-Based Prediction for Complex Systems will integrate experimentally validated theoretical advances with measured data from all relevant experiments (including from NNSA's unique facilities).

Homeland Security. To meet scientific challenges posed by threat reduction and to tie together Science-Based Prediction for Complex Systems and homeland security goals, T Division's broad range of enhanced predictive capabilities (nuclear physics, theoretical chemistry, biology, complex systems, data analysis, numerical algorithms) is being adapted and applied to homeland security problems such as securing and improving infrastructure integrity, developing detection and attribution tools, and biothreats.

Biology. Entering a phase of quantitative predictive science, biology is evolving from its gene-sequencing focus toward a dependence on scientific computation for modeling genetic and other cellular complexity. One biology focus is computation of protein structure and binding, which will support more efficient new drug discovery. Development of vaccines against rapidly evolving viruses (e.g., influenza and HIV) is another theoretical focus relevant to public health and national security.

Energy and Environment. Assessment of the cost and efficacy of strategies for energy production and environmental remediation requires developing and applying predictive methods for multiscale modeling to problems for which experimental and observational data at many length scales are available, in order to validate predictive scaling techniques.

Enabling Scientific Tools. Progress in the predictive science of complexity will require vigorous development of supporting science in, for example, uncertainty quantification, advanced software design, modeling multiscale and nonequilibrium processes and complex stochastic processes, effective data-utilization methods, and agent-based models, and other methods for modeling complex and adaptive networks.

Successful accomplishment of this thrust necessitates strengthening existing partnerships and developing new partnerships with both internal and extramural groups. Existing partners include X, DX, CCS, EES, ESA, MST, and D Divisions at the Laboratory, and the Department of Defense (DoD), the National Institute of Health (NIH), numerous universities, and industrial organizations such as Procter & Gamble and Motorola. Through this thrust, a new generation

of predictive capabilities will be available to a customer base that includes the National Nuclear Security Administration (NNSA) and other Department of Energy (DOE) programs, DoD, NIH, and private industry.

Goals/Activities for 2004–2005:
- Maintain a strong presence in stockpile stewardship by serving on boards that govern the planning process.
- Continue summer programs in epidemiology for students and visitors.
- Respond to invitations for pilot projects in science-based prediction.
- Align LDRD-DR and pilot project proposals with Division thrusts and other Laboratory Goals.
- Execute the Director's funded *Systems Modeling at LANL* proposal using agent-based modeling and other tools.
- Play an active role on the Predictive Science Advisory Council at Los Alamos.
- Continue T Division participation in *LA Science* publications on science-based prediction.
- Plan a joint LANL-Santa Fe Institute-European Union workshop on science-based prediction.

Funding Sources: Laboratory Directed Research and Development (LDRD), DOE/Nuclear Nonproliferation, Defense Threat Reduction Agency (DTRA), Defense Advanced Research Projects Agency (DARPA), National Infrastructure Simulation and Analysis Center (NISAC)

Innovative Science in Support of Stockpile Stewardship

The purpose of this thrust is to create more accurate fundamental physics models and data through integration of experiment, theory, and computation; enhance the science of certification in partnership with the goals of the Nuclear Weapons Directorates; and exploit the large investment in T Division's basic science, which creates numerous opportunities to bring innovative ideas from other areas of science into weapons physics.

In support of the mission to certify the stockpile in the absence of nuclear testing, T Division research brings together numerous innovative scientific concepts conducted via collaborative workgroups comprised of T Division scientists, X Division designers and code integrators, and experimentalists in P, C, LANSCE, MST, DX, and ESA Divisions at the Laboratory, as well as from Lawrence Livermore National Laboratory (LLNL) and Bruyères-le-Châtel (CEA) in France. Such collaborations ensure that theoretical advances will be motivated and validated by experiments, assessed in an integrated design context, and ultimately used in certification for the nuclear weapons program, the primary customer for this research. Other customers are found throughout DOE Science and Technology programs, particularly those benefiting from a new generation of simulation science or those involved in threat reduction and homeland security initiatives.

Efforts are also coordinated with non-weapons basic research initiatives. Subtle variations in stockpile manufacturing and aging characteristics must be accounted for with enhanced fidelity in the maintenance of the stockpile. The demonstration of applications to problems outside the weapons arena broadens the approach and leverages investments in those non-weapons areas.

Goals/Activities for 2004–2005:
- Nuclear and atomic physics and interactions of matter with radiation—nuclei far from stability, quantum molecular dynamics simulations of density effects, novel diagnostics for mix, nonequilibrium processes for Boost, and opacities.
- Materials science—constitutive formulations developed from multiscale modeling for metals, high explosives, polymers and other weapons materials; reaction laws; aging analysis and prediction; and equations of state.
- Numerical methods and software for hydrodynamics (e.g., advanced hydrodynamics and solver algorithms, interface treatments, constitutive laws for particular mesh resolutions).
- Uncertainty quantification—metrics for stockpile certification and weapons physics, analysis of experimental data (both historical and modern).
- Directed Stockpile Workload, pit surveillance, and enhanced surveillance and manufacturing.
- Strongly coupled plasmas.
- Astrophysics of stars, supernovae, and compact objects (e.g., nucleosynthesis, high energy-density physics, and computing and computational science for multidimensional, time-dependent cosmic phenomena).

Funding Sources: NNSA, LDRD

Division Scientific Thrusts

High Energy-Density Physics

High Energy-Density Physics (HEDP) is the study of matter under conditions that exceed one megabar in pressure, which includes environments such as giant planet interiors, white dwarf interiors, inertial confinement fusion implosions, and laser-matter interaction experiments. There are numerous Los Alamos opportunities in HEDP, with established and new collaborations in place, as well as mechanisms to help increase interactions. The Laboratory's Science Roadmaps are great opportunities to expand HEDP science.

An enhanced HEDP program contributes to other National and Laboratory goals such as science-based prediction of complex systems, materials science, and energy security (fusion). HEDP is also a highly visible science area and extremely valuable for external collaborations and recruitment opportunities. The research areas of several T Division groups, particularly T-1, -3, -4, -6, and -15, fall naturally under the HEDP umbrella, with smaller efforts in other groups (e.g., T-12 and T-13) falling within HEDP. The thrust area has three focus topics: nonequilibrium phenomena, radiation hydrodynamics, and quantum simulation methods.

Goals/Activities for 2004–2005:

- Enhance HEDP programs with a more dedicated funding base and research themes at Los Alamos, including promoting coordination across groups/divisions and program boundaries.
- Coordinate closely with experimental activities being carried out at the Laboratory, in particular with P Division, and other international efforts, including CEA (Paris).
- Conduct innovative HEDP science important to the weapons program.
- Develop predictive models of matter under HEDP conditions.
- Develop long-range hiring strategy with line and program input, and hire new staff and post-docs in key areas.

Funding Sources: NNSA, LDRD

Predictive Science and Technology for Threat Reduction and Homeland Security

One of the greatest consequences of the events surrounding September 11, 2001, is a collective understanding that the Nation's vulnerabilities are closely tied to the complexity of our infrastructure, health system, government, economy, and society and that the lack of *understanding* of the workings of our "system" reduces our ability to respond to national and global needs. This thrust addresses the need to advance our knowledge on how these complex systems work at a fundamental level, particularly in response to our rapidly changing global system.

The strategic objectives are threefold: (1) to develop core technologies that contribute across many application areas, (2) to develop S&T projects and programs that address the needs of threat reduction and homeland security programs, and (3) to leverage the development of the technologies and resources derived from traditional mission areas in predictive science—built on the integration of experiments, simulations and theory—to application areas within threat reduction and homeland security.

This thrust includes the development of an understanding of the following scientific grand challenge areas: (1) the interdependence of various components of a complex system—recognizing the essential parameters responsible for functionality and failure—and how system structures create "gaps" or vulnerabilities; (2) the role of extreme statistics (e.g., outliers, non-normal and long-tail probability distributions) on the robustness, sustainability, and intrinsic uncertainties of complex systems; (3) a dynamical understanding of *adaptive* and *co-adaptive* systems, and (4) quantified treatments of social and cognitive behavior to address complicating issues of individual behavior, societal influences, and response to threats. These grand challenge areas apply to a wide variety of specific research areas, such as the properties and dynamics of infrastructure networks, agent-based modeling, information and knowledge technology, epidemiology, sensor networks, etc.

The approach taken to develop this thrust is to: (1) address threat identification, prevention, response and attribution—sharing resources and creating an integrated approach; (2) identify technological synergy across chemistry-biological, radiological-nuclear, and critical infrastructure protection threats; (3) reduce the cost of threat protection by adding

protection/response to existing or planned functions (e.g., combine detection and response to man-made biothreats to an improved day-to-day public health system); (4) coordinate with Laboratory Strategic Plan, other divisions and outside resources to amplify the T Division's distinguishing strengths and create integrated programs where the Division does not contain essential resources (e.g., experimental facilities).

T Division has active programs that are beginning to develop core technologies related to this thrust. For example, the traditional expertise in fission cross-sections for the nuclear weapons programs has been applied to nonproliferation issues for the characterization and detection of special materials. T Division has taken the lead in the Nation with "threat anticipation" modeling of the formation of terrorist networks in the Middle-East (T-13 Threat Anticipation Modeling Project). Again, T Division leads the Nation in the modeling of epidemics resolved at the National scale—280 million people (T-10, T-11, and T-3 EpiCast Project). T Division has also shown leadership in developing new program areas, for example, by extending the Science-Based Prediction methodologies developed in the Nuclear Weapons (NW) programs to Threat Reduction Programs, by championing the need for an understanding of social dynamics in many areas of national security, and by developing a national response to the need for simulations in crisis response.

Goals/Activities for 2004-2005:

- Actively engage in planning and program development activities within T Division, the Center for Homeland Security (CHS), and national agencies to contribute to the Laboratory-wide program creation.
- Identify and grow technical thrust areas in Threat Reduction within T Division. In particular, build upon successful programs such as the Threat Anticipation Modeling Project, EpiCast, pathogen databases, and computational immune and system biology, particularly in new growth areas of water, plant, and animal vulnerabilities.
- Coordinate within the Associate Directorate for Strategic Research (ADSR) and with the Center for Homeland Security to develop hiring and resource plans to address growing needs, including activating CNLS resources for academic and industrial engagement.

Funding Sources: Department of Homeland Security (DHS), Health and Human Services (HHS), U.S. Intelligence Agencies, DOE, industrial partners

Understanding and Design of Complex Materials

This thrust supports theory, modeling, and simulation in materials, an internationally recognized Laboratory strength at the cutting edge of current materials research. It involves new integrated multiscale (length and time) theoretical techniques that are experimentally validated wherever possible but, most important, that can increasingly predict material properties in regimes inaccessible to experiment (e.g., accurately and reliably calculating properties of matter under extreme conditions for the weapons program).

In industrial and materials processing applications, new advances will guide the design of materials where a purely empirical trial-and-error approach is too costly or time consuming. In soft matter (biomaterials, polymers, organics, hybrid materials) and other complex materials (Pu, high explosives, foams), a theory, modeling, and simulation effort that is closely coupled with specific well-designed experiments is essential to understand, design, and predict materials structure-property relations. A well-designed plan to capitalize on these strengths will help ensure that the Laboratory is best positioned to foster critical technology for all of its technical goals (Laboratory Goals A through G) and to become the premier materials science and technology laboratory in the world.

This thrust depends on aggressively pursuing research efforts for the development of new mathematical, computational, physical models and techniques that span length and time scales from atoms to engineering. The range of techniques that must be integrated is thus quite large and incorporates many disciplines. New statistical models must be developed that capture the important scientific parameters and relevant variables at functional intermediate length and time scales. The importance of the breadth of T Division capabilities cannot be overstated—the development of new tools for modeling materials requires strongly interdisciplinary research.

In addition, to reach its leadership potential in materials research, Los Alamos must optimize a program that integrates experiment with its modeling and simulation capabilities, since experimental guidance and validation of new theoretical techniques will be critical. A major test of the new theories will be how well they are able to guide the experimental program (e.g., suggesting new experiments and providing interpretive bases for the data). Although experimental and

other collaborative ties are already strong with many joint programs already in progress, T Division is eager to engage in constructive dialogue to even better integrate its capabilities with those of other divisions, recognizing that a more disciplined, focused, and planned approach will reap even greater benefits and drive the exciting science that will energize and integrate materials, chemical, and biological research for decades to come.

Key opportunities lie in our ability to take advantage of important facilities such as the Center for Integrated Nanotechnology (CINT), Los Alamos Neutron Science Center (LANSCE), National High Magnetic Field Laboratory (NHMFL), Dual Axis Radiographic Hydrodynamics Test Facility (DARHT), the proton radiography facility at LANSCE and, in particular, large-scale computing. Indeed, a principal competitive advantage for Los Alamos is its ability to apply high-end computer capabilities to important problems. Our numerous collaborators in universities, industry, and other national laboratories are a significant resource. It will be important to consolidate efforts into a coherent program with specific short-term and long-term objectives and to sustain the support for funding and staff to establish and maintain an international reputation in this area.

Goals/Activities for 2004–2005:
- Work with the Laboratory's Materials Science and Engineering Council to better coordinate theory with experiment in Laboratory programs.
- Work with CINT leadership to establish an outstanding program in theoretical nanoscience and as a way to exploit growing opportunities in soft/organic/biological materials.
- Continue to forge close ties with user facilities (LANSCE, NHFML, etc.).
- Take advantage of the new Weapons Supporting Research program as a possible new funding source for complex materials and as a way to integrate these capabilities for nuclear weapons applications.
- Seek new opportunities for applications of complex materials to Threat Reduction programs (e.g., sensors).

Funding Sources: DOE Office of Basic Energy Science, DOE/Defense Programs, DoD, Defense Advanced Research Projects Agency (DARPA), LDRD

Modeling Biological Processes

This thrust area aligns with several of the Laboratory's seven national security goals, especially in strengthening the science base and science prediction capability at Los Alamos. It is directly related to key DOE, DHS, and DoD programs and has wide applications in Threat Reduction and improving human health in general. This thrust area is positioned to take advantage of the Laboratory's world-class scientists and capabilities in the areas of immunology, epidemiology, viral dynamics, networks, complex system modeling, quantum chemistry, molecular modeling/simulation, and high-performance computing. Additionally, it will benefit from access to state-of-the-art computational facilities and facilities such as the neutron source at LANSCE, electron microscopies, and CINT facilities at Los Alamos.

Goals/Activities for 2004–2005:
- Work towards establishing a Biological Modeling/Pathomics Center at Los Alamos. (See also PO 4.0 on page 20)
- Participate in the Genomes to Life program at DOE.
- Develop a program in vaccine design.
- Developing novel biomimetic sensors.
- Provide and enhance the science base for the Laboratory's efforts in Threat Reduction (see above).
- Integration of different expertise at the Laboratory into coherent programs to support research in system biology.
- Develop capabilities and strengths in areas of immune, regulatory, and transcription control networks to support programs in Genomes to Life, Threat Reduction, and Homeland Defense.
- Enhance partnerships with other divisions (B, CCS, D, MST, P) on structural biology, mass spectroscopy, microchip arrays, informatics, and databases.

Funding Sources: DHS, NIH, DOE Office of Science (DOE/SC), LDRD

Fundamental Processes

This thrust area aims to cover those aspects of science that provide the basic understanding of microscopic and macroscopic processes. The two primary objectives are to coordinate and support the Division's response to Laboratory

Strategic Goal G (DOE/SC) and to integrate theory, modeling, simulations, and experiment to elucidate the basic microscopic and macroscopic theories that describe natural phenomena.

There are several large national and international projects, facilities, and capabilities that are driving theoretical investigations in areas covered under this thrust. For example, the Large Hadron Collider at CERN (2007+) will study electroweak symmetry breaking, the Higgs phenomena, and whether fundamental interactions at very high energies respect supersymmetry. Use of the Relativistic Heavy Ion Collider at Brookhaven National Laboratory will probe Quantum Chromodynamics (QCD) at high temperature and density, with implications for early universe. Precision experiments at SLAC, Fermilab, and KEK, which when combined with nonperturbative calculations of matrix elements within hadronic states using Lattice QCD, will look for possible deviations from the standard model. Accelerator and nonaccelerator neutrino experiments will tell us about neutrino masses and mixing; resolution of the anomalous acceleration of Pioneer will test gravity; and high precision data on cosmic microwave background (CMB) will help elucidate the evolution and large-scale structure of the universe.

The Division has, through a new LDRD/DR, initiated a study of the structure and formation of First Stars (T-6, -8, and -16). This adds to the already significant effort in the study of nuclear structure and rates, nuclear astrophysics, high-density nuclear matter, fundamental symmetries, and QCD.

The thrust also has major efforts in cold atoms and in quantum dynamics of correlated electron systems, including coupled electron-phonon systems, electron-spin systems, photoemission, and inelastic tunneling. In addition, there are significant efforts to develop new technology with the capability to engineer microscopic physics of quantum degenerate many-body systems. Current efforts include: BEC-BCS-crossover, fermion pairing mismatched fermi-surfaces, quantum → classical transition, ultra-cold plasmas, strongly coupled fermion superfluid, fermion-boson mixtures, BEC-coherence and dynamics, ion traps, and solid-state devices to realize quantum information protocols and quantum simulators, optical lattices, many-body quantum entanglement, effective Hamiltonians (strongly correlated fermions), exotic states of matter, and quantum phase transitions.

Goals/Activities for 2004–2005:

- Investigate opportunities for enhanced research at common frontiers of astro, nuclear, and particle physics.
- Coordinate efforts in quantum information research with the LANL Quantum Institute.
- Carry out cutting edge research that helps maintain LANL's position as a premier scientific laboratory.
- Develop a broad-based core capability in mathematical and physical sciences that provides the underpinnings of the science and technology mission of the Laboratory.
- Develop modeling, simulation, and analysis capability to study complex systems and elucidate the basic principles underlying observed phenomena.
- Recruit and retain excellent scientists.

Funding Sources: DOE/SC, NRO, DARPA, Air Force, ARDA/NSA, IBM, NRL, CITIgroup, LDRD, SciDAC

Advanced Scientific Computing Research

The overall goal of this thrust is to discover, develop, and deploy the computational tools that enable researchers in the scientific disciplines to analyze, model, simulate, and predict complex phenomena important to Laboratory missions. The paradigm shift in today's scientific world is such that the sophistication of mathematical models, the accuracy and efficiency of numerical algorithms, the robustness of computer software, and the power of computation have become so great that numerical simulations are now considered a third pillar—along with theory and experiment—in the triad of tools used for scientific discovery and prediction. The rate of advance in these fields and the ability to simulate complex physical systems will increasingly be the limiting factors in our ability to effectively confront many pressing scientific challenges.

Therefore, it is essential to foster and support fundamental research in advanced scientific computing by developing fundamental mathematical methods and advanced scientific computing approaches to model complex physical systems on the highest-performance computers available. The long-term goal is to create a strong scientific foundation for supporting high-performance computer simulations in support of the other goals of the Division Strategic Plan.

Division Scientific Thrusts

Many research areas require computational models incorporating more complete and realistic descriptions of phenomena than are currently possible. More efficient algorithms, more accurate mathematical models, advanced software, and more powerful computers are essential to fueling the pace of scientific discovery underpinning the Laboratory's research and development for its energy and national security missions in stockpile stewardship, fusion science, biology, nanoscience, high-energy and nuclear physics, fluid dynamics, applied mathematics, chemistry, climatology, and related fields. Because computational capability is also so critical to scientific discovery in these core missions, T Division aims to bring a renewed focus to this challenge.

This focus includes a renewed support for collaborations between computational scientists, application simulation developers, computer scientists, and applied mathematicians to create the complete set of necessary and sufficient advances in computer models, algorithms, software, and advanced hardware to meet the Laboratory's next generation of major scientific challenges. These challenges will be increasingly complex, progressively more multidisciplinary, and span a much larger range of spatial and temporal scales.

Work at the forefront of science can require the dedicated availability of the most advanced supercomputers for extended periods of time. To meet the need for effective computing, T Division will support the evaluation, installation, and application of new, very high end computing architectures. We will work with the Laboratory's Institutional Computing Resources initiative to provide significant amounts of open computer resources to enable computations that could not be carried out on high-end workstations and conventional supercomputers.

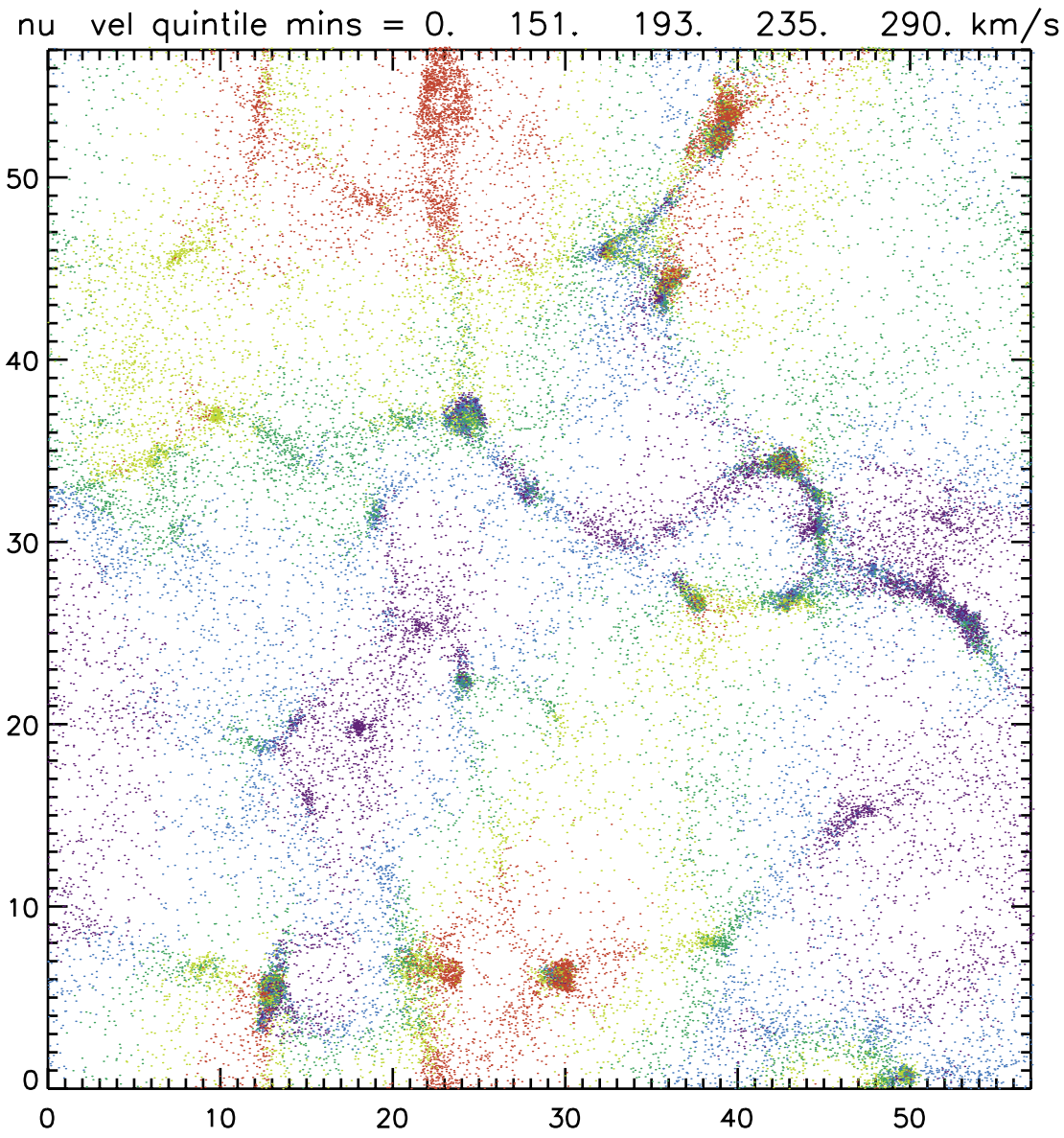
The thrust will increase our focus on creating the foundation and advanced scientific computing infrastructure for synergistic multidisciplinary advances with the traditional theoretical and experimental sciences thus maximizing the value derived from the Laboratory's facilities and research investments.

Goals/Activities for 2004–2005:

- Develop core technologies in algorithms, mathematical models, software, and advanced hardware that contribute across many application areas.
- Develop S&T projects and programs that address the needs of science-based predictive models.
- Leverage the development of the computing technologies and resources derived from programmatic areas in predictive science.
- Develop new and improved mathematical methods for addressing the challenges of multiscale problems.
- Incorporate the new models into scientific simulation software that achieves greater performance from supercomputers than is currently achievable.
- Progress toward developing the mathematics, algorithms, and software enabling effective scientifically critical models of complex systems—including highly nonlinear or uncertain phenomena or processes that interact on vastly different scales or contain both discrete and continuous elements.
- Collaborate closely with the Nuclear Weapons (NW) Science Campaigns to ensure the vitality of the focused experimental programs upon which the credibility of new simulations depends.
- Provide the necessary computing capability to code users, in collaboration with industrial partners and government agencies.
- Evaluate mission-critical requirements to guide us in selecting particular architectures well suited to our workload.

Funding Sources: NNSA, LDRD, DOE/SC

Division Contributions to Appendix F Measures



T DIVISION CONTRIBUTIONS TO APPENDIX F MEASURES

Performance Objective #1: Conduct warhead certification and assessment actions using a common UC Design Laboratory Strategy.

T Division plays a central role in developing high-fidelity physics models to enhance the predictive capabilities of the simulation tools used by the warhead certification and assessment community. The Advanced Simulation and Computing (ASC) program's Materials and Physics (M&P) program element at Los Alamos supports the majority of these physics enhancements, and T Division is the single largest contributor to that program. These improvements are evaluated through the Quantification of Margins and Uncertainties (QMU) framework, which has been developed in a joint UC/LANL/LLNL process.

Performance Objective #2: Develop with NNSA and implement long-term, balanced, integrated stewardship.

(Performance Measure) PM 2.1. *Support the needs of warhead assessment, certification, and simulation validation by executing a coordinated program of targeted small- and large-scale experiments and mining of archival UGT data to improve predictive capability. Develop and execute a program of hydrotests and subcritical experiments that addresses assessment and certification needs.*

In conjunction with our responsibilities for weapons physics theory and model development, the Division Principal Investigators (PIs) and staff work with our experimental colleagues to ensure that the data necessary for validation purposes are obtained and that the program plans of the Experimental Physics Program are coordinated with those of the Theoretical and Computational Programs. In this way the fundamental validation process can be performed with the relevant small-scale ("single physics") experimental data. Once the models are implemented into the simulation codes they can be further validated against the integral ("multi-physics") data from hydrotests, subcritical, and other large-scale experiments. The ASC M&P program is organized into a suite of constituent projects representing relevant discipline areas (e.g., equation of state, atomic physics, nuclear physics) that correlate to the Division's group structure. The individual PIs and their group management interact with the various project leaders and program managers to perform this coordination.

The contributions of T Division to modeling and theory for the weapons programs can be more fully appreciated by examining the specialties of each of the groups as described in the Organizational Summary (see pages 4–8), as well as in the research papers and other quantitative measures of accomplishment provided throughout this document. T Division has also had responsibility for managing the Laboratory-wide ASC M&P Modeling project up until December 2004 when a reorganization consolidated all Laboratory weapons program managers into the newly created Principal Associate Directorate for Nuclear Weapons Programs.

PM 2.2. *Conduct design and analysis of nuclear weapons that address the future needs of the US nuclear deterrent.*

T Division has a supporting role in the area of weapons design and analysis. Our role is one of consulting with the assessment community as subject matter experts of the underlying physics, as that physics is expressed in the simulation tools. In this way we identify the shortcomings of the currently implemented physics and can then work to target and develop enhanced, physics-based models for future implementations, creating evermore-predictive tools for the assessors.

PM 2.4. *Develop and demonstrate ASC simulation and modeling capabilities that support the ongoing needs of stockpile assessment and certification.*

Certification or assessment plans for more than one of the Laboratory's weapons systems are explicitly linked to milestone deliveries from T Division. This represents a significant change from even the recent past. In addition, the Division has played a central role in the formulation of the methodology for quantification of margins and uncertainty (QMU) and the implementation of the Laboratory Strategic Goal A (Science-Based Prediction). Assessing our evolving predictive simulation capability also requires significant efforts in validation and verification, especially uncertainty quantification (UQ). T Division is also a member of the "G4," an advisory body to the Program Director of the ASC Program, comprised of the four division offices that execute the majority of the Program (X, T, CCS, and CCN). As a result, T Division plays a significant role in planning the Program's future.

Among the principal issues of stewardship vigorously addressed is predictability and uncertainty quantification. This requires an extensive knowledge of equations of state, material strength, nuclear cross sections, opacities, and the chemistry and material science of aging. T Division remains the principal Laboratory focus for the theoretical foundations of these properties. A broad set of knowledge of material dynamics is required. This includes the effects of strength, failure, spall, instability, turbulence and mix, and the Division continues a long-standing position of preeminence in the theory, modeling, and simulation of these processes, as well as providing guidance for the performance of experiments necessary to gather relevant additional data.

Improved predictability requires powerful numerical techniques for the complex dynamics in a weapon environment. Among the Division's staff are world leaders in code development and applications. Our computational codes incorporate the best physical data and motivated models for material instability mix, turbulence, radiation transport, and nuclear and chemical transitions. They are robust and efficient even in the presence of a strong distortion of interacting materials driven by large concentrations of rapidly released energy. In recent years, the computer codes have been ported to new, highly parallel machines.

PM 2.5. *Improve and apply tools and models for prediction of systems, subsystems, and/or component lifetimes.*

The aging nuclear stockpile requires continual maintenance, and surveillance of the stockpile will continue to reveal a host of aging issues. The expertise and experience within the Division allows us to remain active on several fronts to ensure that the stockpile remains reliable and that safety is not compromised. New opportunities to support the Stockpile Stewardship Program include uncertainty quantification, polymers and high explosives, equations-of-state, opacities, nuclear cross-sections, high energy-density physics, and nonequilibrium phenomena.

PM 2.6. *Develop and implement a collaborative and complementary program of experiments at High Energy-Density (HED) facilities that supports assessment and certification needs.*

Division personnel are active participants in collaborations involving HED facilities that support assessment and certification needs. Research in areas ranging from fast-particle stopping in warm dense matter, equations of state of HED matter, and x-ray Thomson scattering diagnostics for dense plasma diagnosis are currently underway. Many of the experiments are currently being carried out at the Trident laser facility, with smaller-scale laser-based experiments also in progress. T Division activities are supported through the Boost program (C1), Thermonuclear Burn Project (ASC), and LDRD.

PM 2.7. *Develop and implement an integrated program with a central goal to achieve ignition at NIF in 2010.*

Through the work performed in T Division in the areas of atomic physics (including opacities) and thermonuclear burn (important elements of the ASC M&P portfolio), our work improves the ability of the Laboratory to contribute to this important national goal. In addition, we have Division staff supported directly under Campaign 10 (Ignition) working directly with the Experimental Program on ignition issues at NIF.

PM 2.8. *Develop and implement an integrated program for plutonium capabilities of LANL and LLNL to support the overall NNSA strategic requirements.*

Personnel from T Division, including the Equation of State Project Leader, the M&P Program Manager, the Pit Lifetimes PI, and senior staff, have all been directly involved in several recent workshops and reviews of the plutonium capabilities at LANL. These meetings have worked to develop a consensus tri-lab evaluation of the current capabilities, and a program plan for modeling and data needs. This has served as a basis for discussions about the facilities required to obtain the data necessary to guide and validate model improvements.

Performance Objective #3: Develop with NNSA and implement near-term balanced weapon programs that are coordinated with the other NNSA Management and Operations (M&O) site contractors and DoD customers and that foster complex-wide solutions to meet the needs of the US nuclear deterrent.

Division Contributions to Appendix F Measures

PM 3.1. *Conduct stockpile surveillance activities, investigate significant findings and issues identified in technical assessment reports on a prioritized basis, and establish closure plans for Significant Finding Investigations (SFIs).*

T Division has an increasingly large portfolio in the surveillance program. In addition to the significant contributions we have made in the areas of high explosive and canned subassembly (CSA) lifetimes, the T-1 Group Leader now serves as the lead PI on the Laboratory's pit lifetimes equation of state effort. Work from T Division has been directly used as part of SFI closures and more work has been commissioned for future SFI issues.

PM 3.2. *Deliver on the major milestones for the Life Extension Programs for the W76, the B61-7/11, and the W80-3 in accordance with the joint DOE/DoD phase 6.x process.*

T Division is supporting these programs by helping to identify critical aging components through various collaborative projects.

PM 3.3. *Deliver on W88 Pit Manufacturing and Certification Project major milestones.*

T Division has contributed to understanding major material and fabrication issues that are crucial to the successful execution of the W88 pit manufacturing at Los Alamos. Simulation tools for the W88 Pit casting have been enhanced by contributions from Division personnel. The W88 certification plan specifically calls out contributions from T Division. This work is currently underway.

PM 3.4. *Meet directive schedule requirements.*

All Laboratory Nuclear Weapons Programs work is planned using project management tools and standards. T Division is subject to all relevant components of that schedule for its specific deliverables.

PM 3.6. *Complete the establishment of, and implement in accordance with NNSA-approved plans, a weapons design and manufacturing quality assurance program consistent with NNSA requirements.*

Beginning this year with Revision 10, the QC-1 Quality Control plan for the weapons program, includes within its scope R&D activity, whereas in previous years this only included facilities and manufacturing. As a result the weapons-supported work in T Division is subject to certain standards of quality assessment. In the graded approach being adopted, the longer-term research primarily done in the Division relies significantly on the academic peer-review process. A recent audit found no issues in T Division.

PM 3.7. *Develop and execute projects to improve the responsiveness of the design, manufacturing, and testing infrastructure of the integrated nuclear weapons complex.*

The increasingly predictive simulation tools to which we contribute significantly will, over time, result in a more efficient and less costly means of performing our stockpile stewardship mission. While we will always conduct small- and large-scale experiments in support of our mission, we should become less reliant on them, answering a greater fraction of questions that arise by means of our validated simulation tools.

Performance Objective #4: Implement an integrated science and technology-based program aimed at preventing the proliferation or terrorist acquisition of weapons of mass destruction as well as detecting and responding to their deployment or use.

PM 4.1. *Provide technical capabilities to limit or prevent the spread of materials, technology, and expertise relating to weapons of mass destruction; eliminate or secure inventories of surplus materials and infrastructure usable for nuclear weapons; and enable the implementation of US nonproliferation policy.*

The Division is making significant contributions to the detection of nuclear materials by drawing on our capabilities in nuclear physics to aid in detector design and analysis. This has proved useful in support of both securing materials in this country and abroad and in monitoring borders against the covert introduction of nuclear materials. We have also

played a role in quantifying the utility of nontraditional nuclear materials for weapons use and in working with the design community to anticipate possible improvised nuclear device (IND) designs. Knowledge of alternative IND designs is an important prerequisite to looking for signs of proliferation and for assessing our vulnerability to terrorist attack.

Exciting new initiatives in the area of biological weapons and attacks are discussed in PM 4.4.

PM 4.2. *Provide scientific research capability that produces cutting-edge R&D as well as the testing and evaluation needed to detect, identify, and monitor proliferation and terrorist-related weapons of mass destruction activities.*

As a strong technical division involved in research, T Division is a significant resource for the Laboratory as it moves to increase its business in Threat Reduction activities—a strategic direction for Los Alamos. Drawing on our strengths in multidisciplinary research in theory, modeling, and simulation, the Division brings significant capabilities to these emerging needs. Our substantially enhanced strategic partnering with the Laboratory's Threat Reduction Directorate and the CHS is in the clear interests of the Division, the Threat Reduction programs, and the Laboratory.

PM 4.3. *Support the needs of the intelligence community by providing intelligence analysis capabilities and science and technology that improve the nation's ability to detect and thwart proliferation and terrorism.*

In addition to the consulting on matters of nuclear weapons technology that T Division members have done traditionally, several new areas of support of the Intelligence Community (IC) have emerged in T Division over the past few years and have resulted in a clear growth area for the Division. We have multiple sponsors currently in place for analyses of terrorist networks and their capabilities using agent-based modeling methods. In addition, Division staff are working at the forefront of fundamental discoveries of networks and their behavior, which are beginning to find application in such diverse areas as infrastructure vulnerability analysis (e.g., power grid), communication network optimization, and spread of biological epidemics. The Division's capabilities in nuclear physics are proving very important in developing the means of analyzing the debris in the aftermath of a nuclear device detonated by a terrorist to determine the source of the material, hence identifying its origin. This "attribution" effort draws from capabilities developed under sponsorship of the nuclear weapons program to meet new threat reduction missions, and is currently funded from NNSA. We are also finding applications for our capabilities in the analysis of very large-scale data sets to identify patterns, connections, and hidden signals in the extremely large bodies of data collected by the IC. Our materials capabilities are likewise finding sponsorship in support of intelligence needs, including design of novel sensors and detectors, and in predicting the behavior of "designer materials" not yet synthesized. Finally, there are significant new programmatic opportunities for our exceptional strengths in the biological arena as described in PM 4.4.

PM 4.4. *Develop and support the deployment of technologies and analytical capabilities that strengthen the Nation's ability to protect against and respond to terrorist use of weapons of mass destruction and other threats against the US homeland.*

T Division has taken leadership over the past years in championing the broader application of predictive science, including uncertainty quantification, in mission areas beyond NW programs. This activity led to the successful development of two multidivisional projects that not only address homeland security needs, but also are providing a vision and path forward for the biosciences at the Laboratory.

The first project is in support of the DHS's Science and Technology Office of Research and Development in the area of biological threat characterization and analysis for the National Biodefense and Countermeasure Analysis Center (NBACC). At the sponsor's request, a T Division-lead project was initiated in August 2004 to develop a methodology to provide the Nation's first biological risk assessment that is transparent and defensible, in response to the Homeland Security Presidential Directive 10 (HSPD-10). The deliverable for the measure is to:

> *develop a suite of methodologies for the generation of the first-pass risk assessment in support of the NBACC, amenable to regular (e.g., biannual) and immediate updating. Use this methodology to complete a preliminary risk assessment of classical biological threats.*

The multidivisional team developed the methodology, applied the tool, and provided the above deliverable on time in January 2005. Upon assessment of the preliminary project, the sponsor is continuing the effort for an October 2005 deliverable funded at $7.2M. The LANL-developed methodology and its application is the cornerstone of the biological

risk assessment that was delivered to the President in January 2005. The success in this project has also led to $3.2M of funding in FY05 for an applied research program to develop a rapid risk assessment capability for the Nation, also led by T Division and drawing heavily on the long standing capabilities in group T-10. In addition, the project is the impetus for the basis of a FY06 Congressional Initiative to develop a *Center for Theoretical and Computational Pathomics* (ranked number one in the Laboratory's DoD initiatives). Taken together, these projects and initiatives define a vision and path forward for the biosciences at the Laboratory, as well as addressing critical national needs in homeland security.

The second project (EpiCast) included in the PM 4.4 deliverables is the establishment of new epidemiological modeling capability that can assimilate data from the public health monitoring systems and forecast the future of an epidemic. It addresses two unmet needs of the Nation's biodefense: (1) providing a tool to decision makers to weigh mitigation strategies during a crisis, and (2) understanding the coupling between local events and national consequences. The project originated in a DOE program for the support of Homeland Security (CBNP) and was transferred to DHS Science and Technology when it stood up. The deliverable for the measure is:

> *Develop and apply an advanced simulation capability to aid in planning and understanding response to contagious disease outbreaks, in support of the DHS Biological Countermeasures portfolio.*

While the main deliverables are to be provided at the end of FY05, DHS considered this project to be of such key importance that the budget for FY05 was doubled to $1M (no other project in the $60M portfolio had such a large increase). Because of the immediate need of the tools developed in this project, its timeline was restructured to provide resources earlier. Critical in this development was the use of a simulation resource that was developed for the NW programs for simulating molecular dynamics (SPaSM), but which proved to be so remarkably flexible that it was quickly adapted to modeling epidemics resolved at an individual level. The resulting capability was demonstrated to be capable of modeling the entire world's population (billions of people), where the comparable state of the art in the world is attempting to model regions of the U.S. (millions). EpiCast will also be the core epidemiological capability for a high-visibility incident awareness capability that is being developed for cities around the US to support the integration of the BioWatch environmental surveillance system with the local public health and emergency resources.

PM 4.5. *Apply advanced science and technology to meet immediate and long-term US defense community needs.*

Advances made by Division staff in the areas of quantum encryption and quantum key distribution continue to receive support (from NSA, DARPA, LDRD) and are excellent examples of advanced science and technology being applied to general defense and intelligence community needs. While our contributions in this general arena are often small in scale, they are generally of very high impact.

PM 4.6. *Maintain and deploy, as required, nuclear emergency response teams for CONUS and OCONUS response to radiological and nuclear threats.*

Members of the Division continue their relationship with the Emergency Response community.

Performance Objective #5: Enhance and nurture a strong science, engineering, and technology base in support of national security strategic objectives.

The nature of the programs T Division is involved with varies from the core program that initiated the Laboratory (the nuclear weapons program), to medium-sized, multidivisional programs (most recently in Threat Reduction and Homeland Security) to small, innovative programs at the cutting edge of science. A major role of the Division has been and remains that of innovator and incubator for future technical directions of the Laboratory. Frequently these projects reach a level of development that attracts significant program funding and consequently have even led to the establishment of new Laboratory divisions. For example, X (Applied Physics), CCN (Computing, Communications and Networking), CCS (Computer and Computational Sciences), and D (Decision Applications) divisions had their origins in T Division.

PM 5.1. *Nurture and maintain the Laboratory science and engineering excellence in disciplines and capabilities needed to support our national security missions and emerging national needs.*

There are a number of statistical measures that demonstrate the Division's efforts in nurturing, maintaining, and supporting excellence in science capabilities and technical staff.

Research papers and reports. Each year, T Division staff produce approximately 30% of all the peer-reviewed publications at the Laboratory. T Division makes a diligent effort to record all publications for each calendar year. Division staff members contributed to almost 700 publications in 2004; Appendix A (see page 40) contains a list of these publications. Because each group reports its own publications and some publications have authors from two or more groups, we may accumulate some duplicate records although an effort has been made to remove duplicate entries. These approximately 700 publications represent an average of almost three peer-reviewed publications per Technical Staff Member and Postdoctoral Associates within the Division. From this list the tremendous breadth and quantity of the published research from Division staff is readily apparent, as is the very broad range of journals in which they publish. Clearly, biologists will read and publish in different journals than do atomic physicists or computer scientists. Indeed, one of the strengths of the Division is the close associations and collaborations among scientists from many different disciplines. Thus, statistics on which journal is most commonly chosen for publication is substantially different for T Division than for an organization that has only a limited set of programs, and will also vary from year to year as research interests evolve. Journals of the American Physical Society are the most common, as is the *Physical Review Letters* journal (approximately 220 articles appeared in one of the five volumes of the *Physical Review*).

GROUP	NUMBER OF PUBLICATIONS
T-DO	43
T-1	26
T-3	8
T-4	52
T-6	24
T-7	65
T-8	40
T-10	83
T-11	94
T-12	109
T-13	67
T-14	15
T-15	24
T-16	34
CNLS	16

A sense of the disciplines in which there is the greatest activity can be gained by compiling a list of the number of publications in each group as shown in the following table. This is, of course, a broad generalization because some staff work in more than one discipline, disciplines extend over more than one group, and some groups work on activities in which it is difficult to publish in the open literature.

Not all the unclassified research output of the Division appears in peer-reviewed journals. Appendix B (see page 74) contains a list of all publications, reports, and preprints for which a Laboratory information release number (LAUR) was requested during 2004. Even this list does not completely represent the sum of the Division's publication and presentation output. Approximately 36% of the Division's budget is derived from the Nuclear Weapons Program, which supports some work that cannot be published in the open literature or is in support of the Division's three major database efforts. Much of that work will appear in the form of the classified or unclassified databases, classified reports, or classified papers. Division staff members wrote a total of 22 classified reports and papers in 2004, which are listed in Appendix C (see page 128). In addition, some of our work for industrial sponsors may be proprietary and is also not normally publishable in the open literature.

Presentations and invited talks. The distinction between invited talks and other presentations is often difficult to ascertain. At some meetings the distinction is clear and relevant while not in others. Because such efforts would be subject to considerable error, we have not attempted to track this distinction in our database. The list of presentations at professional meetings and conferences is provided in Appendix D (see page 130), reflecting the major international involvement of the Division's staff. In addition to presentations at professional meetings, staff also frequently make presentations to UC and government officials and program sponsors throughout the year.

Awards, honors, and elections. Members of the Division who received awards and honors during 2004 are listed in Appendix E on page 170. Elections to national science and engineering societies are also included. Of special note for 2004 is Bette Korber's (T-10) DOE Ernest Orlando Lawrence Award, which she received in the Life Sciences category, and Wojciech Zurek's (T-DO) Phi Beta Kappa Visiting Scholar award.

In 2004, three new Laboratory Fellows were appointed from within T Division: Alan Bishop (Division Leader), Byron Goldstein (T-10), and Joseph Carlson (T-16). The quality of the senior Division staff is reflected in the fact that a much larger fraction of our staff are Laboratory Fellows relative to the number in other divisions. In 2004, T Division had

Division Contributions to Appendix F Measures

5 Senior Fellows and 30 Fellows (including retirees). Following is a list of members and associates of the Division that are Fellows or Senior Fellows of the Laboratory.

SENIOR FELLOWS		
Colgate, Stirling A., T-6	Perelson, Alan S., T-10	Younger, Stephen M., T-DO
Frauenfelder, Hans, T-10	West, Geoffrey B., T-8	
FELLOWS		
Baker, George A., T-11	Friar, James L., T-16	Pack, Russell T., T-12
Bishop, Alan R., T-DO	Goldstein, Byron, T-10	Smith, Darryl L., T-11
Boulaevskii, Lev, T-11	Ginocchio, Joseph, T-16	Solem, Johndale, T-DO
Brackbill, Jeremiah U., T-3	Harlow, Francis H., T-3	Strottman, Daniel, T-DO
Carlson, Joseph, T-16	Hay, P. Jeffrey, T-12	Swartz, Blair K., T-7
Collins, Lee, T-4	Hills, Jack, T-6	Voter, Arthur F., T-12
Cowan, Robert D., T-4	Kober, Bette, T-10	Wallace, Duane C., T-1
Cox, Arthur N., T-6	Louck, James D., T-7	Wendroff, Burton, T-7
Dukowicz, John K., T-3	Milonni, Peter, T-DO	Young, Phillip G., T-16
Ecke, Robert E., CNLS	Nieto, Michael J., T-8	Zurek, Wojciech, T-DO

Memberships in professional organizations. Numerous staff members in the Theoretical Division are members of one or more professional organizations, with 34 of them elected to the rank of Fellow within these organizations. A list of organizations and the Division members in those organizations are listed in Appendix F on page 174. A summary of these memberships by organization is shown below.

Organization/Society	T Division Members	T Division Fellows
AIDS Vaccine Research	1	
American Academy of Arts and Sciences	1	
American Association for the Advancement of Science	13	1
American Association for the Study of Liver Diseases	1	
American Association of Immunologists	3	
American Association of Physics Teachers	1	
American Astronomical Society	9	
American Chemical Society	23	
American Geophysical Union	6	
American Institute of Aeronautics and Astronautics	1	
American Institute of Chemical Engineers	1	
American Institute of Physics	1	1
American Mathematical Association	1	
American Mathematical Society	11	
American Meteorological Society	1	
American Nuclear Society	2	
American Philosophical Society	1	
American Physical Society	93	28
American Society for Metals	1	
American Society for Microbiology	1	

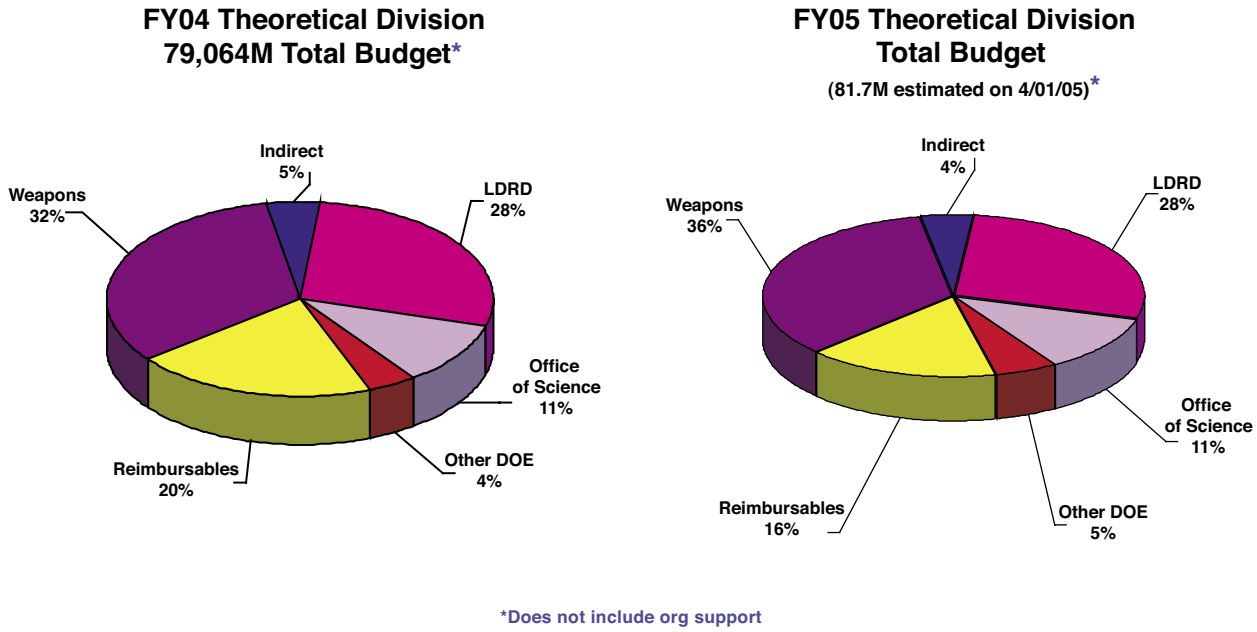
Organization/Society	T Division Members	T Division Fellows
American Society of Mechanical Engineers	4	
Association for Women in Mathematics	1	
Astronomical Society of the Pacific	1	
Atomic Energy Society of Japan	1	
Biophysical Society	7	1
California Alumni Association	1	
Canadian Applied Mathematics Society	1	
Division of Plasma Physics	1	
DYMAT Association	1	
European Center for Theoretical Studies in Nuclear Physics and Related Areas	1	
German Physical Society	2	
Great Lakes Bioinformatics Consortium	1	
Industry-University Cooperative Research Program	1	
Institute of Electrical and Electronics Engineers	2	
Institute of Mathematical Statistics	1	
Institute of Physics (UK)	2	1
International Association of Computational Mechanics	2	
International Association of Hydrological Sciences	1	
International Astronomical Union	3	
International Society for Genetic and Evolutionary Computation	1	
Israel Association for the Study of the Liver	1	
Israeli Society for Theoretical and Math Biology	1	
Leopoldina Academy	1	
London Mathematical Society	1	
Materials Research Society	6	
Mathematical Association of America	2	
National Academy of Sciences	1	
National Institute of Allergy and Infectious Diseases	1	
Optical Society of America	1	1
Physical Society of Japan	1	
Protein Society	1	
Royal Astronomical Society of London	1	
Royal Society of Chemistry	1	
Royal Swedish Academy-Foreign Member	1	
Santa Fe Institute	2	
Sigma Xi Scientific Research Society	7	1
Society for Advancement of Chicanos and Native Americans in Science	5	
Society for Industrial and Applied Mathematics	28	
Society for Mathematical Biology	4	
Southwestern Quantum Information Technology (SQuInT)	1	
Swiss Physical Society	1	

Division Contributions to Appendix F Measures

Organization/Society	T Division Members	T Division Fellows
The Minerals, Metals & Material Society	2	
Topical Group on Shock Compression of Condensed Matter	1	
Tsunami Society	1	
UC Engineering Alum. Society	1	
Union of Concerned Scientists	1	
U.S. Association of Computational Mechanics	3	

PM 5.2. *Develop and implement an integrated and balanced strategy for investing LDRD, programmatic and institutional resources to ensure the long-term vitality of the Laboratory science, engineering, and technology base in support of national security missions and emerging national needs.*

T Division pursues a balanced research portfolio that includes LDRD, Weapons Program, Threat Reduction programs, and other sponsors and agencies in the DOE, NIH, NSA, NASA, and industry, among others. This portfolio has allowed the Division to interact strongly with both the academic community in areas of basic research, with designers in the weapons programs, and with customers in threat reduction and homeland security. This broad spectrum of research has provided a conduit that has facilitated transfer of new ideas and techniques from basic research into the applied programs throughout the Laboratory.



Researchers in T Division have successfully competed to acquire significant LDRD funding, which has allowed the Division to support and nurture a large number of innovative research directions. Many of these initiatives may later expand the capability for current programmatic efforts. These LDRD projects have also led to numerous publications, which are included in Appendix A (page 40). LDRD support has been crucial in attracting and maintaining gifted and highly motivated researchers within the Division. The following table shows the "new-start" FY05 LDRD projects with T Division involvement. (These contribute to approximately one-third of the total Division LDRD portfolio.)

Title	PI	PI Group	T Division Participants
Rational Vaccine Design: Theory and experimental validation	Bette Korber	T-10	T-8: T. Bhattacharya; T-10: A. Perelson, R. Ribeiro, B. Korber, G. Gnanakaran, B. McMahon, C. Kuiken; T-13: A. Lapedes
Physical Modeling of Biomolecules and Ribonucleo-protein Complexes of Importance to Pathogenicity	Benjamin McMahon	T-10	T-10: M. Labute, K. Sanbonmatsu, G. Gnanakaran, B. McMahon; T-12: K. Nemeth
Nanoscale Fluctuations in Multifunctional Materials	Alexander Balatsky	T-11	T-11: K. Rasmussen, J. X. Zhu, S. Trugman, D. Smith; T-10: K. Sanbonmatsu
Atomistic Studies of Fast Chemical Processes in Nanostructured Metastable Composites	Alejandro Strachan	T-14	T-14: S. Zhao
New Americium Delta-A Metric for Primary Certification (U)	Mark Chadwick	T-16	T-16: T. Kawano, P. Talou, P. Möller, E. Lynn
A System-scale Theory for Fast Magnetic Reconnection	Dana Knoll	T-3	T-15: L. Chacon
Coming Out of the Cosmic Dark Ages - The First Stars in the Universe	Alexander Heger	T-6	T-6: C. Fryer, M. Warren, S. Colgate, G. Jungman, F. Timmes, T. Luu, B. O'Shea, D. Whalen; T-7: S. Li; T-8: A. Friedland; T-16: J. Carlson, S. Reddy, P. Möller
Antineutrino Monitoring of Reactors	Anna Hayes-Sterbenz	T-6	T-6: G. Jungman, J. Hills; T-8: M. Nieto; T-16: B. Wilson, S. Cowell, A. Steiner
Cross Sections for the Isomer of 235U	Anna Hayes-Sterbenz	T-6	T-6: G. Jungman, J. Hills; T-16: J. Friar
Taming and Accelerating Particle-In-Cell	Salman Habib	T-8	
Measuring Neutrino Properties with Oscillation Experiments	Tanmoy Bhattacharya	T-8	T-8: A. Friedland
Cold Atom Quantum Simulators	Juan Paz	T-DO	T-4: D. James, E. Timmermans; T-11: G. Ortiz, J. Gubernatis
Lagrangian Measurements of Fluid Mixing	Robert Ecke	CNLS	T-13: M. Chertkov, D. Sharp, B. Plohr; T-11: P. Lomdahl; T-12: B. Holian; T-14: K. Kadau, J. Barber
Nonlinear Behavior in Complex Systems	Robert Ecke	CNLS	Postdocs
Cooperative Phenomena in Soft Matter	Robert Ecke	CNLS	Postdocs
Resolving the Aerosol-Climate-Water Puzzle: Predictive Science for Global Stability and Security	Manvendra Dubey	EES-6	T-3: P. Jones; T-7: D. Moulton
Pu-H Interactions: Studies of Plutonium Hydride Phenomena (U)	David Moore	NMT-16	T-1: S.-P. Chen; T-12: J. Hay, R. Martin
Protocell Assembly	Steen Rasmussen	EES-6	T-6: S. Colgate; T-7: Y. Jiang; CNLS: P. Weronski
Material Response During Dynamic Loading at Subpicosecond Time and Nanometer Length Scales	James Glownia	DX-2	T-4: S. Mazevet; T-11: R. Albers
Be-Specific Human Immune Response and Development of CBD	Thomas McCleskey	C-SIC	T-10: S. Gnanakaran; T-12: D. Asthagiri, L. Pratt

Division Contributions to Appendix F Measures

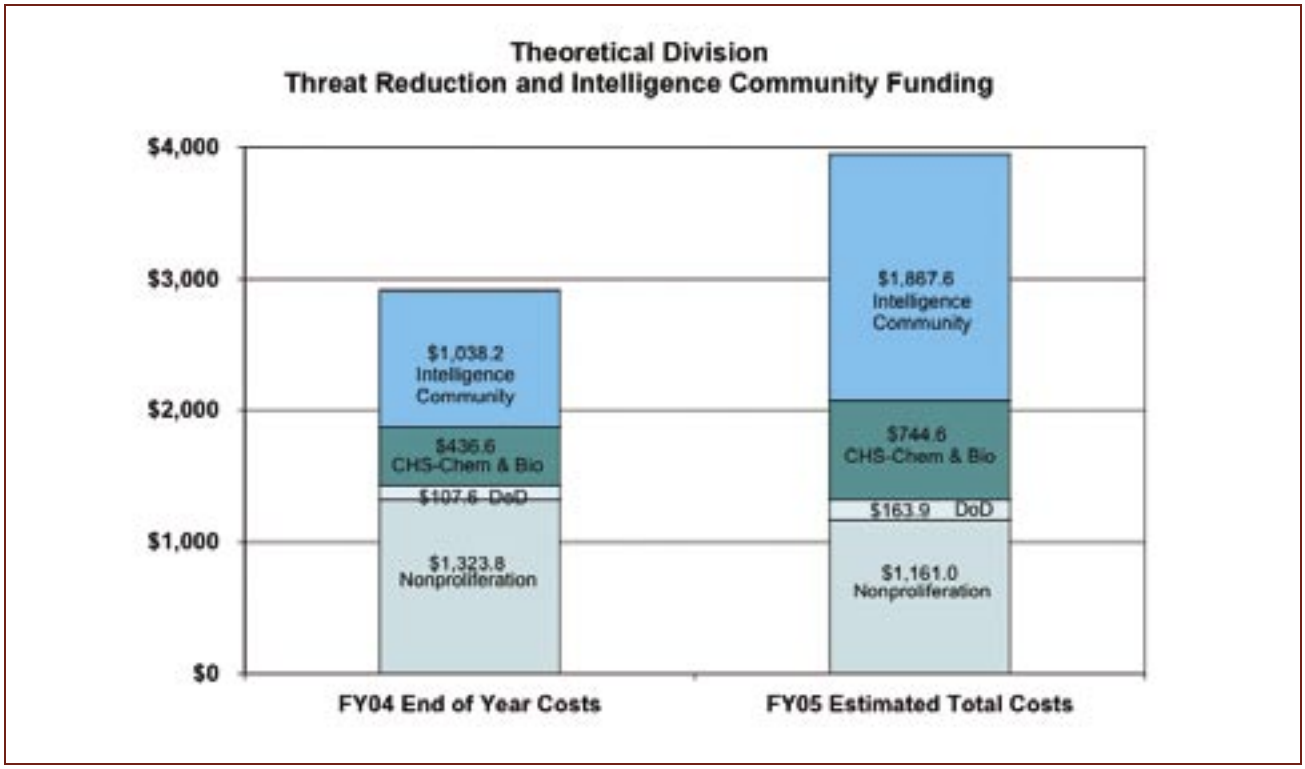
Title	PI	PI Group	T Division Participants
Thinking Telescopes: Pursuing a New Paradigm for Discovery in Observational Science	Tom Vestrand	ISR-1	T-6: C. Fryer, M. Warren
Fulde-Ferrell-Larkin-Ovchinnikov Inhomogeneous Superconducting State	Roman Movshovich	MST-10	T-11: L. Boulaevskii
Physics of Astrophysical Jets	Hui Li	X-1	T-6: S. Colgate; T-7: S. Li; T-15: J. Finn, G. Lapenta

Work in the Threat Reduction programs is often classified, but significant recent efforts have been described under Performance Objective #4 (see pages 20–22). The creation of the Laboratory's CHS, and renewed activities with DoD agencies, have allowed the Division to considerably expand the Division's role as described earlier in this document. This involves use of our expertise in computation, modeling, simulation and networks; novel chemistry and materials; biological databases and physics; nuclear and radiological processes; and other areas. The Division also nurtures and maintains an active research effort in energy and environmental science such as modeling ocean currents and climate change.

PM 5.3. *Execute non-NNSA sponsored research and development that builds on unique Laboratory expertise and capabilities and enhances the ability to meet current and future national security needs.*

The Division's evolving funding portfolio is another demonstration of how successful it has been in the pursuit of non-NNSA-sponsored research and development. The staff have successfully pursued opportunities to work with industry or other agencies with great celerity. New opportunities in Homeland Defense and Threat Reduction have also been vigorously pursued (described above), in addition to the continuously strong Work for Others/Reimbursable (DOE, NIH, NSA, NASA, etc.) portfolio.

T Division has been very responsive to changing national needs with respect to research in nuclear weapons, energy, environmental change, industrial competitiveness, terrorist threats, disease epidemics, and other challenges. The support of these varied research missions has further allowed the Division to attract, motivate, and maintain gifted researchers



with a wide range of research skills. The Division is committed to maintaining and growing its capabilities to respond to new research challenges of national importance and has aggressively pursued sponsorship of research to build upon and enhance its capabilities.

Laboratory's National security goals. The Division contributes in a wide variety of ways to all of the seven Laboratory goals, as evidenced throughout this document. The breadth of research capabilities throughout the Division allows us to respond to questions, problems, and programs that relate directly to one or more of the goals. A good set of examples is the databases that are the responsibility of T Division: equation-of-state, nuclear cross sections, opacities and other photo cross sections, and the AIDS and papilloma virus databases. Other examples involve new projects with the Decision Applications (D) Division in agent-based modeling, with applications including epidemiology and critical infrastructure modeling. There are many more examples to be derived from core theory and modeling problems where analysis and assessment are needed as a phase of problem solving. The new biological threat characterization (DHS) initiatives rely heavily on theory, modeling, and databases from T Division (see PM 4.4 on page 21).

Interactions with industry. Despite the decline of CRADA initiatives nationally, staff throughout the Division remain actively engaged in responding to collaborative opportunities with industry. Division staff have made scientific contributions to US industry, including partnering with Proctor & Gamble, petrochemical firms such as Exxon-Mobil and Dow Chemical, and automobile manufacturing giants such as Ford and Daimler-Chrysler on computer simulation of manufacturing processes and product performance.

Non-Federal Work for Others Agreements: 13 active agreements, 4 executed in 2004.

Agreement No.	Partner	PI and Group	Information
FIA-04-003	St. Jude Children's Research Hospital	Catherine Macken T-10	Executed 5/2004 Scheduled expiration 8/2005
FIA-04-026	The Regents of the University of New Mexico	Alan Perelson T-10	Executed 6/2004 Scheduled expiration 6/2005
FIA-04-036	The General Hospital Corporation (*dba* Massachusetts General Hospital)	Bette Korber T-10	Executed 9/2004 Scheduled expiration 11/2009
FIA-04-047	Acta, Inc.	B. VanderHeyden T-3	Executed 12/2004 Scheduled expiration 12/2006

Nondisclosure Agreements: 2 active agreements, 1 executed in 2004.

No.	Partner	PI and Group	Information
4808	The University of Hong Kong	Alan Perelson T-10	Executed 2004 Scheduled expiration 6/2006

Patent Applications and Issued Patents: 1 application filed and 1 issued in 2004.

DOE S-Number	Title	Inventors and Group	Application Type Filing Date
100635	Software and Procedures for Creating Mathematical/ Computational Models of Cellular Signaling	William Hlavacek (T-10) James Faeder (T-10) Mikhail Blinov (T-10)	ORD 19 Aug 2004
DOE S-Number	**Title**	**Inventors**	**Issue Date**
94780	Methods and Optical Fibers that Decrease Pulse Degradation Resulting from Random Chromatic Dispersion	Ildar Gabitov (T-7) Michael Chertkov (T-13)	2 March 2004

Invention Disclosure: 1 invention disclosure in 2004.

LAD#	Title	Inventor	Status
2003112	Polyvalent Immunogen	Bette Korber (T-10)	Pending

Copyright Assertions: 1 copyright assertion submitted in 2004.

DOE-C-No.	Code Name	Author
C-04,012	Mesh Toolkit (MSTK), Version 1.2	Rao V. Garimella (T-7)

CRADAs: 2 continuing CRADAs, which are described below.

Advanced Multifield Simulation Development (Proctor & Gamble and Sandia National Laboratories; Principal Investigator Bryan "Bucky" Kashiwa, T-3; expected completion, August 2005)

The collaborative research performed under this CRADA will develop new approaches to addressing issues in manufacturing, materials development and use, biosciences and computer-based simulation of physical processes. The T Division work, performed under the aegis of the Laboratory-wide CRADA, is to scope the use of certain cutting-edge developments in multi-field flow theory on manufacturing problems of interest to Proctor & Gamble. Of particular importance are models and methods for examining the dynamics of solid materials influenced by the flow of a turbulent gas stream, a closely coupled fluid-structure interaction. This ongoing work is valued by Proctor & Gamble for reducing the cost of engineering new manufacturing processes. At the same time the work provides positive feedback to the Laboratory by testing new theories and simulation methods in flow regimes relevant to our mission.

Manufacturing of Model-Driven Nanostructured Materials (Metallicum, LLC; Principal Investigator Irene J. Beyerlein, T-3; expected completion, October 2006)

Under a DOE project, Initiatives for Proliferation Prevention, Los Alamos (T-3) and scientists in the former Soviet Union are working to develop predictive models for advancing understanding and optimal design of severe plastic deformation (SPD) technologies. The SPD process used by Metallicum, LLC, called Equal Channel Angular Processing (ECAP), can potentially produce nanostructured metals with the extraordinary property of simultaneous ultrahigh strength and high ductility as well as superplastic forming behavior. Together Metallicum, LLC, and T-3 are managing and technically guiding Russian scientists in model development. The models will enhance US competitiveness via lower experimental costs and more optimal and efficient manufacturing processes. Moreover, they will help to transfer SPD processes to the market by providing reliability and efficiency. Currently, Metallicum, LLC, is the only company who intends to sell metals made by these processes.

Support of energy resources. Currently, the Division has one automotive effort supported by the DOE Office of Energy Efficiency and Renewable Energy (EE). The effort is **improving the engine simulation software, KIVA,** by increasing the types of grids KIVA can compute with and reducing computer simulation times by parallelizing the code.

Several Division staff are working in support of the **Global Nuclear Futures Initiative**, the goal of which is the transmutation of high-level waste to shorter-lived, low-level waste. Under this program, spent nuclear fuel from commercial power plants would be chemically separated and the actinides sent as feed stock to advanced nuclear systems, either reactor-based or accelerator-driven, to be fissioned. Such a scheme would greatly reduce the amount of high-level waste that would normally be bound for an underground repository, as is the current practice in the US. The Global Nuclear Futures Initiative is being spearheaded by the ADSR and has successfully received the backing of the Laboratory. A more detailed program plan is currently being developed, partially in conjunction with other laboratories including the Idaho National Engineering and Environmental Laboratory, and LANL is working with congressional delegations to obtain support for it as a national policy direction. From a technology perspective, this is a very broad initiative and draws on many strengths in the Division including the nuclear physics associated for developing new nuclear data evaluations for the design of new reactors and to support the transmutation processes, nuclear fuel design, materials issues associated with behavior in hostile environments, and novel algorithms for the solution of coupled nonlinear implied equation systems for the next generation of nuclear reactor safety simulation models.

Support of environmental quality. Division management are members of the Laboratory's **Energy and Environmental Council.** As mentioned above, Division staff are involved with the automotive companies to help design a **cleaner and more efficient internal combustion engine.** A novel method of sequestering CO_2 from the flue gases of coal burning power plants has been extended to include possible removal from the atmosphere. Several Division staff were active participants in the AAA project, which when built will convert long-lived radioactive elements into short-lived products as well as produce electrical power. Other projects are the **development and application of numerical methods for multicomponent spray evaporation** to be utilized to analyze internal combustion engines.

T Division hosts half the members of the LANL **Climate, Ocean and Sea Ice Modeling (COSIM) project.** Ocean and sea ice models developed by COSIM are used in several of the world's leading global climate models. Predictions from these models are contributing to the Fourth Assessment Report of the Intergovernmental Panel on Climate Change, the most important confluence of international climate modeling expertise. COSIM models are also used by Division researchers to study polar processes by participating in the **Arctic Ocean Model Intercomparison Project,** which involves over a dozen international modeling groups. Most climate models predict maximum warming in the polar regions, and there is much evidence that polar warming has already begun. As sea ice thins and retreats, changes in the heat and fresh water content of the polar oceans could have a profound influence on the ocean circulation and climate.

Division researchers are also building on their reputation in high-resolution ocean modeling by embarking on the most ambitious coupled **ocean circulation/ecosystem simulation** ever attempted. By combining a realistic ocean circulation with marine ecosystem dynamics (including interactions among plankton, nutrients, and inorganic compounds), we will better understand the earth's carbon cycle and the effects of climate change on the marine ecosystem, which lies at the base of the global food chain.

COSIM researchers continue to **advance the state of the art in ice and ocean modeling.** A hybrid-coordinate ocean model, HYPOP, is being developed to describe the ocean circulation more accurately. This model combines the best features of z-coordinate models, which are most accurate in the upper ocean, and isopycnal models, which excel in the deep ocean. Work has also begun on modeling the ice sheets that cover Greenland and Antarctica. Ice-sheet melting in a warmer climate could substantially increase global sea level.

Support of other federal agencies. The Theoretical Division continues to have significant interactions with the **Department of Defense** (DoD), particularly on programs requiring a fundamental understanding of underlying physical process, innovative approaches to fundamental questions, and an appreciation of the needs of DoD and its customers. **The National Security Agency** (NSA) funds three research projects on quantum computation. One is understanding the fragility of quantum information and developing methods to make it more robust against corruption. Already a better understanding of decoherence, one of the main sources of this fragility, has been reached. Quantum error codes have been developed for noise independent from qubits (the quantum version of bits) and the simplest version has been implemented using Nuclear Magnetic Resonance. A theory of quantum error correction for general noise is being developed. A second project is developing a perturbation theory for scalable quantum computation and modeling and simulations of the processing of information in solid-state quantum computers with many qubits. The goal is to define the range of parameters for which the errors are small, to increase our understanding of the effects of errors and to allow benchmarking future quantum computer devices. The third project supports the ion trap effort in the Laboratory's Physics Division, in particular, the heating of ions due to patch potential and stray field are under investigation. Additional projects are classified. Another group is involved with **Defense Advanced Research Projects Agency** (DARPA), on single-spin based quantum microscope, and with the NSA, on scalable self-assembled quantum computation.

A team in T-6 has been funded by the **National Aeronautics and Space Administration** (NASA) Applied Information Science Research Program to develop tools to store multiterabyte datasets as cost-effectively and efficiently as possible. This 3-year project, Software Technology to Enable Reliable High-Performance Distributed Disk Arrays, has the goal of building disk arrays out of commodity off-the-shelf hardware to reduce storage cost by a factor of 10. T-16 researchers have also won a 3-year grant from NASA to develop nuclear modeling codes that simulate nuclear reactions from high-energy protons and ions in space environments. These simulation codes use intranuclear cascade theory to model the break-up processes and also include models for break-up of the ion projectiles and decay mechanisms such as spallation and fission.

Division Contributions to Appendix F Measures

Since 1986, the Division has received funding from the AIDS Division of the **National Institutes of Health** (NIH) to provide a sequence database and analysis resource for the international AIDS research community (http://hiv-web.lanl.gov). The database is currently serving thousands of researchers and institutions in over fifty countries and has tens of thousands of users each week. One of the principal services of the database is in the realm of a discipline known as molecular epidemiology, the global tracking of infectious pathogens. Thus, the database and analysis unit is also the **World Health Organization's** (WHO) database for molecular information pertaining to the AIDS pandemic. Since its inception, T-10 has steadily added more databases to its repertoire. Presently, they curate a database of HIV immunological epitopes, a database of mutations associated with resistance to antiretroviral drugs, and a database of HIV and SIV vaccine trial data. With these databases come ever-growing sets of tools to facilitate data analysis and a collection of review articles by experts in the field, tutorials, etc. For each database, T-10 produces a yearly compendium providing a synopsis of the data. These compendia are provided free of charge to subscribing institutions and scientists worldwide. Based on a summary of the global diversity captured in the database, we are helping in the design of vaccine reagents for HIV. Molecular sequence and immunology databases for infectious pathogens are a first line of defense in this modern war against plagues. As an extension of the HIV databases, the NIH has funded a new database project in Hepatitis C virus. The WHO estimates some 170 million people carry HCV and there is currently no vaccine against Hepatitis C or HIV.

PM 5.4. *Foster active participation in the broad scientific and technical community, leveraging unique Laboratory expertise and capabilities; develop strategic collaborations with other national laboratories, industry, and academia.*

All technical staff members in the Division are involved in collaborations with the scientific community (universities, industry, and other national laboratories) throughout the world (see Appendix G on page 184). In addition, several members of the Division also serve as officers in the societies of which they are members. Division staff also engage in personnel exchanges with industry and other federal laboratories and agencies as temporary staff on "Change of Station" assignments as program managers at NSF, NIH, and the NNSA.

T Division staff are also involved in a great number of external interdisciplinary programs, for example, the University of California **Cooperative Agreement on Research and Education (CARE)** program, which is designed to identify and fund opportunities for promising students and faculty to participate in new and innovative research, enhance collaborations with universities in areas of strategic importance, and provide a research environment to encourage students to pursue technical careers. Division staff are closely involved in the **Santa Fe Institute's (SFI)** multidisciplinary programs and have played a seminal role in the Institute's foundation, along with continuing activity through collaborations and organization and participation in conferences. In 2004, a **SFI/LANL Memorandum of Understanding** was executed, which was based on negotiations led by T Division. The newly founded NSF Center at the **University of New Mexico (UNM)** for the **Consortium of the Americas for Interdisciplinary Research** was the result of a strong partnership between UNM and Los Alamos where T Division played the major role. Division staff serve on the **Governance Board** of the new **UC/LANL Memoranda of Understanding** with UCSD, UCSB, UCD, UCSC, and UCR campuses.

The Theoretical Division is a partner in the **National Science Foundation Nanoscale Science and Engineering Center (NSEC)** for Directed Assembly of Nanostructures at **Rensselaer Polytechnic Institute** and the **University of Illinois at Urbana-Champaign,** founded in September 2001. The mission of the center is to integrate research, education, and technology dissemination, and serve as a national resource for fundamental knowledge and applications in the directed assembly of nanostructures. The center research involves two major areas of emphasis: nanoparticle gels and polymer nanocomposites and nanostructured biomolecule composite architectures. Several staff members in the Division participate in the partnership and Antonio Redondo (T-10) is a member of the Executive Committee of the Center.

The Division hosts half of the members of the LANL Climate, Ocean and Sea Ice Modeling (COSIM) project. Ocean and sea ice models developed by COSIM are used in several of the world's leading global climate models. Predictions from these models are contributing to the **Fourth Assessment Report of the Intergovernmental Panel on Climate Change,** the most important confluence of international climate modeling expertise.

Important new projects started in T Division by the **DOE Office of Science** in FY05 include (1) a theory, modeling, simulation element of CINT (with **Sandia National Laboratories** [SNL]); (2) organic electronic materials; and (3)

solid-state lighting (with SNL). New projects funded by NIH include a joint project with the **Harvard Medical School** on transcription in DNA. Division collaborations with **industry** are described in PM 5.3 on page 28.

Examples abound of the more **informal involvements** in interdisciplinary programs. This includes: (1) sponsorship of conferences and workshops to bring together experts from several disciplines around the world; (2) fostering new collaborations in materials science involving materials modeling with accurate chemistry now deployed in the ASC and other programs; and (3) frequent interchange of information and ideas between Division staff and the rest of the Laboratory (including internal sabbaticals with X Division and several joint appointments).

Editorial boards. At least 37 members of T Division serve on editorial boards of over 50 different professional journals in a variety of capacities. A detailed list is given in Appendix H on page 210.

Referees on journals and other publications. Division staff also serve the larger scientific community by serving as referees on over 80 different journals and other publications. Over 50 individual staff members serving in this capacity are shown in Appendix I on page 214.

Professorships, committees and boards. T Division staff continue to remain active in the external research community by serving on a wide variety of technical committees and advisory boards. Many of the Division's staff members also hold adjunct professorships with academic institutions. These relationships not only foster scientific exchanges and collaborations, but also serve as effective recruiting mechanisms. A list is provided in Appendix J (see page 220).

Conferences. The Division continues to host and/or organize a broad variety of **conferences and workshops** designed to foster active participation by a wide range of collaborators and potential collaborators in academia, other research laboratories, and industry. These number at least 20 per year; in August 2004, for example, the Division hosted the 12th International Conference on Recent Progress in Many-Body Theories in Santa Fe. In addition, the Division is responsible for organizing several annual educational programs for students in mathematics, physics, and biology. These education programs are described in Performance Objective #10 (pages 36–38).

T Division, in collaboration with the Laboratory's Physics Division, hosts the **P/T Colloquium** series. This series has been ongoing for over 10 years and has brought a wide variety of distinguished speakers to Los Alamos. The talks are open to the entire Laboratory community and are always well attended. In 2004, T Division hosted about half the speakers out of the total 33 talks given during the year.

Another regular series hosted and organized by the Division is the **Quantum Lunch**, which features speakers from different organizations and academia with an interest in fostering continued collaborations and research and development in the quantum information science and technology field. These informal presentations and interactions occur approximately three times per month. In 2004, 32 talks were hosted. This lunchtime series is part of the Laboratory's Quantum Institute, which was formally organized in 2002 with the mission of providing advocacy, information, coordination, and organizational support for quantum information science and technology programs and researchers at Los Alamos. The Los Alamos Quantum Institute embodies the single largest multidisciplinary collection of quantum information science and technology researchers in the world. T Division is one of seven Laboratory divisions currently participating in the Institute.

A listing of conferences and workshops, P/T Colloquium talks, and Quantum Lunch talks for 2004 is given in Appendix K on page 226.

Code/software products. Several of the Division's projects involve the design of software packages or computer algorithms. In some instances these are packaged and made available for the general research community. Many of T Division's products are used in institutions around the world and are the benchmarks against which other codes or methods are compared. Two examples of such software packages are CAVEAT and NJOY. CAVEAT is a 3-D hydro program used in many applications, NJOY is a data-processing package for nuclear reaction data. Other examples include OpenSesame, a suite of equation-of-state tools, and the accompanying Sesame Library, a compendium of equation-of-state tables used by government, academic, and industrial institutions. LAGriT (Los Alamos Grid Toolbox) is a set of tools for creating and tracking unstructured grids in multimaterial applications, used by many academic institutions.

Performance Objective #6: Optimize current and evolving mission performance by providing effective and efficient facilities and infrastructure.

Although T Division certainly relies on efficient facilities and infrastructure to carry out its work, the Division does not have significant involvement in ensuring this Performance Objective is met.

Performance Objective #7: Utilize UC strengths to recruit, retain, and develop the workforce.

PM 7.1. *Recruit and retain a skilled and diverse workforce that meets the Laboratory' long-range core and critical skills requirements by implementing a human resource strategy that leverages student programs and UC relationships.*

The Division aggressively participates in the Laboratory university recruitment program by advertising in professional journals and fully utilizing its extensive network of professional colleagues inside and outside the Laboratory. The principal mechanism for hiring technical staff is through a deliberate use of the Graduate Research Assistant and Postdoctoral Associate programs as a systematic pipeline. This has been an extremely useful and successful recruiting tool as the quality of the current staff demonstrates. In 2004, the Division converted eight Limited-term Technical Staff Members (LTSM) to full-time, regular (TSM) employee status and seven Postdoctoral Associates to either LTSM or TSM status. A small number of technical staff (approximately 20%) are recruited directly as LTSMs or regular TSMs. In addition, T Division has historically been extremely successful in recruiting post-docs through the Director's Funded Postdoctoral Fellow Program, as well as garnering a large number of Distinguished Postdoctoral Appointments. All current post-docs and appointment types are shown in Appendix L on page 234. The importance of mentoring and a recruitment pipeline to sustain critical capabilities are considered strategically essential by T Division.

PM 7.2. *Implement leadership and management development programs that achieve workforce and diversity objectives.*

The Laboratory has recently initiated several leadership and management development programs and T Division has been actively participating as they evolve. In 2004, two Division members (Brian VanderHayden, T-3, and Audrey Archuleta, T-DO) were active in the new (2003) Director's Development Program, which is aimed at addressing the specific need to better prepare individuals to effectively transition to progressively higher levels of management. T-6 Group Leader, Frank Timmes, was elected to serve as the 2004 Vice-chair of the Group Leader Action Council, which reviews a wide variety of topics and proposed policy changes that affect line management at the Laboratory. He will become chair in 2005. Several Division members have attended the Laboratory's Leadership Institute and Management Institute training and development series.

During 2004, several changes in Division group management occurred due to promotions to serve in broader Laboratory capacities (including Deputy Chief Science Officer of the Laboratory and an ASC Program Manager), or other career-choice changes. The next generation of group line managers has been easily recruited from within the Division, as they are regularly nurtured through Deputy Group Leader positions, acting positions, or other leadership opportunities (e.g., leading Division thrusts). Where necessary, the Division also recruits aggressively outside the Division or Laboratory to ensure we meet our workforce and diversity objectives.

PM 7.3. *Establish and implement a weapons point of contact development program.*

The Division has been assuming an ever-greater role in both the execution of the nuclear weapons program plan, but also in its planning and leadership. Over the past five years or so, the Division has gone from no leadership role in the NW program to the current state where a program manager is a T Division alumni and at least six staff members are serving as project leaders or principal investigators. In addition, the Division Office serves as part of an advisory body to the ASC program, the "G4." As a result, we now have a cadre of staff experienced in program and project management, and a development path for future leaders for NW program management.

Performance Objective #8: Maintain safe, secure, environmentally sound, effective, and efficient operations in support of mission objectives.

PM 8.1. *Achieve continuous improvement in ISM System performance.*

T Division line managers are cognizant of and active participants in the Integrated Safety Management System to ensure performance and appropriate involvement of workers. Line managers make monthly use of the Management Walkaround System (MWA) and engage employees by selecting one or two to accompany them on walkarounds and by discussing safety and security topics with workers they encounter during regular visits. Division MWA compliance rates averaged 138% over the four quarters in 2004, which is well above the Laboratory average. The Division also makes use of the Laboratory's Nested Safety and Security Meeting process appropriate to the activities of the Division and allows a forum for employees to raise issues and make suggestions for safety improvements. Because the work performed in the Division is primarily "office work" (as opposed to experimental work in a laboratory or other facility), it is important to use a tailored approach to Laboratory initiatives to ensure direct relevance to employees and keep them effectively engaged at the appropriate levels.

PM 8.3. *Maintain an environmental management program consistent with the DOE-approved baseline, funding levels, policy, and negotiated regulatory requirements.*

The Laboratory began rolling out its Environmental Management System (EMS) in November 2004. Current activities include completing an all-employee training requirement, communicating the nature of the program to employees, and identifying the areas where each Laboratory organization's activities impact the environment. The Division is an active participant in this evolving program, with a similar approach to the ISM System. The nature and environmental impacts of the Division's activities will drive the tailored approach to the EMS to best serve the intent of the program and remain relevant to the Division.

PM 8.4. *Achieve continuous improvement in security performance through ISSM and risk management principles.*

T Division line managers are cognizant of and active participants in the Integrated Safeguards and Security Management (ISSM) system to ensure performance and appropriate involvement of workers. Approximately 20% of the Division's activities are classified, or are conducted in secure areas. During the July 2004 Laboratory standdown, security across the Division was a major focus of our Management Self-Assessment. ISSM-related activities included:

- Antonio Redondo (T-10) and Paul Dotson (T-DO), both Authorized Derivative Classifiers, set up a process to handle e-mail securely. The process, which was implemented in consultation with CCS, the Materials Science and Technology (MST) and X divisions, was designed to address potential security risks associated with e-mail originating in the Division while still permitting the Division members to carry out ordinary tasks requiring communication via e-mail. Redondo and Dotson created a presentation containing general as well as group-specific information about potential security risks, including written guidelines for staff. The materials were then used in individual training presentations throughout the month of August 2004 to all groups in the Division. Although a direct correlation is difficult to establish, there has since been a marked decrease in related security issues in this area. The Laboratory has since adopted this basic approach.
- Created a team of "classified workers" to evaluate and develop a list of best-practices garnered from other Divisions, which were implemented in the classified computing facilities in the Division.
- The Division contributed significantly in the performance measure to effectively manage accountable Classified Removable Electronic Media (CREM). All three required-CREM audits in 2004 were 100% compliant throughout the Division. The Division also undertook a major effort in 2004 to reduce its CREM inventory from 108 pieces to 33 by May 18, 2004. By February 2, 2005, we successfully completed the transfer of all accountable CREM to the Decision Applications Division CREM Media Library. The Division no longer has accountable CREM residing in T Division space.
- In collaboration with the Laboratory's Office of Internal Security (ISEC), the Division initiated and established a policy governing the Division requirements for all foreign national employee and visitors and hosts thereof. The policy allows the continued involvement of these essential and highly valued Division resources while still ensuring the ability to detect, deter, and mitigate threats of foreign intelligence collection and espionage at the Laboratory.

Performance Objective #9: Improve or maintain effective business processes and systems that safeguard public assets and support mission objectives.

Although not responsible for establishing the Laboratory business processes and systems, the Division plays an important institutional role by effectively utilizing, implementing, and providing process improvement feedback on Laboratory tools and processes. During the Individual Performance Objective phase of the annual Performance Management system, a conscious effort was made to include performance metrics in this area tailored for each line manager throughout the Division. Several Division line managers and the administrative support have enrolled in or taken courses to improve their understanding of the recent changes and requirements in effective business stewardship, and have identified new tools to assist with financial and procurement management. Division employees will continue to work within the Laboratory systems and will also provide suggestions for improvements that help meet the goal of ensuring the safeguarding of public assets while still enabling the support of mission objectives. The Division is also committed to contributing to and supporting the currently evolving components (as applicable to T Division) of the Laboratory's Operational Efficiency Project and the Enterprise Project. For all Division-specific Corrective Action Plans resulting from Management Self-Assessments, we utilize the Laboratory's integrated monitoring program, I-Track, to track and report findings, recommendations, and improvement actions.

Performance Objective #10: Sustain and/or implement effective community initiatives.

The Theoretical Division has traditionally played a strong role in furthering the education of early-career scientists and researchers. During 2004, the Division employed 76 post-docs, 34 GRAs and 10 undergraduate students (in addition to hosting and educating many more through the Division's summer schools and programs described below). Most of our GRAs are at the Laboratory working on their thesis and are formally mentored by Division staff. A list of the current post-docs is given in Appendix L (page 234) and GRAs is given in Appendix M (page 238). It is evident that T Division staff contribute significantly to nurturing a very large number of graduate students and post-docs in broad scientific areas of science throughout the year. Additionally, large numbers of students and post-docs participated in the numerous conferences hosted by T Division (see Appendix K, page 226).

Educational Initiatives. The Division hosted and organized several major educational programs during 2004. Staff across the Division played active roles in organizing strong technical programs, acted as mentors for the students, and, together with external researchers from academia and other national laboratories, presented a wide variety of materials in their respective fields to a broad range of students.

The **Los Alamos Summer School's** objectives are attracting top-level talent into research careers in the physical and computational sciences. The program focuses on upper-level undergraduate students and meets these objectives through a concentrated format of research and seminars. We attempt to convey a sense of the excitement and importance of the scientific research in general and that are currently conducted at the Laboratory, including our contributions to national and international security through the science-based stockpile stewardship program. The program extends for ten weeks and consists of a mentored research project and a seminar series. The project introduces the student to the basic mechanics of scientific research, while the seminar series consists of a set of lectures by staff and visiting scientists that focus on topical research in various fields of physics. In 2004, 16 students participated in the program, representing 15 different institutions. The 20 mentors came from 13 different Laboratory groups, with 34 lecturers coming from 16 Laboratory groups and from the universities of New Mexico, Illinois, Rochester, and Nevada. The program is a jointly operated educational initiative between the University of New Mexico and the Laboratory. (Contacts: Daniel James, T-4, dfvj@lanl.gov, and Lee Collins, T-4, lac@lanl.gov)

The **Mathematical and Theoretical Biology Institute (MTBI)** is a joint LANL–Arizona State University intensive summer research experience for students. The program has a strong focus on providing a research experience for minority students and the program is based on mentorship with nationally recognized Chicano, Latino, and Native American role models. The Summer 2004 (June 19-August 14) program hosted 23 undergraduates, 20 graduate students, and 21 university faculty visitors, and was held at the Los Alamos High School. These students represented 29 different academic institutions, with faculty visitors coming from 9 different institutions. The MTBI summer program includes 4 weeks of collaborative learning in dynamical systems, modeling and computational methods, followed by 4 weeks of intensive research during which MTBI students work in teams under the supervision of faculty and experienced graduate

students on projects of their own choosing. Upon completion of the research experience, students prepare poster and oral presentations of their work as well as submit technical reports to deliver to the scientific community. (Contact: Mac Hyman, T-7, jh@lanl.gov)

Since 1999, staff in T-8 and T-6 have been organizing an annual **Cosmology Summer Workshop** at St. John's College in Santa Fe. This continuing series of workshops is co-organized with the Theoretical Astrophysics Group at Fermilab and the Kavli Institute for Cosmological Physics at the University of Chicago. The topical workshop for 2004 concentrated on recent developments in cosmology, especially those related to current and expected observational advances, including the cosmic microwave background (CMB), large-scale structure, and dark matter and energy/early universe. The first two weeks were devoted largely to structure formation and the CMB, while the last week focused on dark energy. The workshop format is designed to emphasize discussion with formal pedagogical review and related talks as appropriate, reserving the largest fraction of the day for discussion and informal meetings. To encourage this informality and discussion, attendance is usually limited. For the 2004 Workshop, approximately 85 attendees (including 30 students), representing over 35 institutions, attended. (Contact: Salman Habib, T-8, habib@lanl.gov)

Staff in T-8 have been instrumental in starting the **Los Alamos Strategic Studies Program** (LASSP) to look at present and emerging security challenges. This program brings in distinguished speakers to discuss a number of aspects of security ranging from nuclear weapons to environment to energy to water. It has also organized three international highly successful workshops that discussed issues of terrorism and nuclear weapons. The overarching purpose of LASSP is educational—to develop the next generation of broad strategic thinkers. These workshops bring together world leaders in science, social sciences, medicine, policy, security studies, industry, and government to explore and understand the concerns, challenges, and opportunities of today and tomorrow. The focus of the 2004 workshop on terrorism was Regional Issues and Roles of Networks, and in the words of many of the invited speakers, the best such workshop they had attended. (Contact: Rajan Gupta, T-8, rg@lanl.gov)

Started and sponsored by the Laboratory Fellows in September 2001, the **Frontiers in Science Public Lecture Series** offers four free lectures a year in Los Alamos, Santa Fe, Española, and Taos to ensure that Northern New Mexico residents can attend. The intent of the series is to make people aware that the Laboratory performs research in global warming, AIDS, astrophysics, and a number of other important issues facing the world, in addition to nuclear weapons research. Joe Ginocchio, T-16, has been the coordinator of the lecture series since its inception. (For information on past and scheduled presentations, see http://int.lanl.gov/science/fellows/lectures.shtml.)

Individual staff from throughout the Division participated in Laboratory and **other educational forums**, many of them volunteering their time. Some of these activities are described below.

HIV/AIDS awareness program for local schools. Rajan Gupta, T-8 Group Leader, continued to volunteer his time to present and discuss issues regarding addictions and HIV/AIDS prevention at the Los Alamos Middle and High schools as part of their health classes, volunteers his time as a HIV/AIDS pre-test and post-test councilor for the New Mexico Department of Health (DOH), and is working with the DOH and the Media School at the College of Santa Fe in developing educational awareness tools and materials.

Los Alamos County Annual Science Fair. David Kilcrease, T-4, served as an advisor on the board for the Los Alamos County Annual Science Fair.

Careers and Curiosity in Math and Science is a program designed to foster girls' interest in science and math. The program provides an interactive scientific experience, guided by women scientists and mathematicians and is offered to elementary-school-level children (boys and girls). The goals of the program are to stimulate interest in learning science and mathematics for teachers and students; to raise teacher awareness of gender equity issues relating to math and science education; to expose elementary students to career opportunities in science and mathematics; to foster self-esteem, ambition, and math and science interest in female students; and to provide positive female science and math role models. The project is jointly sponsored by the Laboratory, the American Association of University Women, and participating school districts. This program was co-originated by Denise George (T-1), who still plays an active role in organizing and participating in the program.

The annual *Expanding Your Horizons Program* is cosponsored by the Laboratory and is designed for young women in grades 8 through 10 from Northern New Mexico schools to provide a unique opportunity to explore careers in science, engineering, and mathematics. Each attendee participates in hands-on workshops and team-building activities conducted by women scientists and attends presentations and lectures regarding career opportunities in the science, engineering, and mathematics fields. The program encourages female students to take math and science courses in high school so as to not limit future career choices and offers examples of women who have successful scientific careers. Schools nominate students to participate in this daylong activity. T Division is one of the divisions sponsoring this program. Several female staff members in the Division have helped organize this event, presented workshops, and team activities. Tinka Gammel (T-1) is currently a committee member and presenter.

Appendix J (page 220) includes a list of staff who served as adjunct professors, on advisory committees, or as visiting scientists. These activities all contribute to our science education efforts.

Appendix A
Publications

Appendix A–Publications

Group	Name	Title	Journal	Vol.	Pages
T-DO	Bishop, Alan	Nonintegrable Schroediner Discrete Breathers	CHAOS	14	1130
T-DO	Bishop, Alan	Modeling Of Microscopic Sliding On Irregular Substrates	Surf. Sci.	566	816
T-DO	Bishop, Alan	Role Of Substrate Geometry In Sliding Friction	Nanotechnology	15	790
T-DO	Bishop, Alan	Local Edge Modes In Doped Cuprates With Checkerboard Polaronic Heterogeneity	J. Phys. Soc Jpn.	73	3223
T-DO	Bishop, Alan	Nonlinear Lattices Generated From Harmonic Lattices With Geometric Constraints	Phys. Rev. B.	70	47602
T-DO	Bishop, Alan	Modulation Instabilities And Domain Walls In Coupled Discrete Nonlinear Schroding Equations	Phys. Lett. A.	330	95
T-DO	Bishop, Alan	Nonlinear Friction Of A Damped Dimer Sliding On A Perioding Substrate	Phys. Rev. B.	70	195415
T-DO	Bishop, Alan	Inhomogeneity, Local Mode Formation . . . Complex Change-Transfer Systems	Phys. Rev. B.	70	184303
T-DO	Bishop, Alan	A Rich Example Of Geometrically-Induced Nonlinearity	Phys. Rev. E.	70	66627
T-DO	Bishop, Alan	Multiple Peaked Polarons In Soft Potentials	Phys. Rev. E.	70	25601
T-DO	Bishop, Alan	Strain-Induced Metal-Insulator Phase Coexistence In Perovskite Manganites	Nature	401	428
T-DO	Bishop, Alan	Temperature-Dependent Signatures Of Coherent Vibrational Openings In DNA	Nano Lett.	4	629
T-DO	Bishop, Alan	Quantum Paraelectricity Versus Ferroelectricity	Phys. Rev. B.	70	24104
T-DO	Bishop, Alan	Vibrational Edge Modes In Intrinsically Inhomogeneous Doped Transition Metal Oxides	Phys. Rev. B.	70	24514
T-DO	Bishop, Alan	Three-Plus Photon-Echo Spectroscopy As A Probe Of Photoexcited Electronic State	Phys. Rev. B.	70	161404
T-DO	Bishop, Alan	Survival Of Quantum Effects For Observables After Decoherence	Phys. Rev. A.	69	62110
T-DO	Bishop, Alan	Fibrillar Templates And Soft Phase In System With Short-Range Dipolar And Long-Range Interactions	Phys. Rev. Lett.	92	16801
T-DO	Bishop, Alan	Quantum Lattice Dynamical Effects On The Single Particle Excitations In 1D Mott	Phys. Rev. B.	69	165115
T-DO	Bishop, Alan	Nonlinearity From Geometric Interactions: A Case Example	Phys. Rev. E.	70	47602
T-DO	Bishop, Alan	Structurally Specific Dna Dynamics Determining Transcription Initiation Sites	Europhysics Lett.	68	127
T-DO	Bishop, Alan	Super-Roughening As A Disorder-Dominated Flat Phase	Europhysics Lett.	66	552
T-DO	Bishop, Alan	Doped Transition Metal Oxides: Networks Of Local Dist. Cor. By Elastic Fields	J. Phys. Chem. Solids	65	1449

Group	Name	Title	Journal	Vol.	Pages
T-DO	Bishop, Alan	DNA Dynamically Directs Its Own Transcription Initiation	Nucleic Acid Research	32	1589
T-DO	Bishop, Alan	Dynamics And Melting Of Stripes, Crystals And Bubbles With Quenched Disorder	Physica D	193	303
T-DO	Bishop, Alan	Glassy Behavior In Systems With Kac-Type Stepfunction Interaction	Phys. Rev. E.	69	10501
T-DO	Dalvit, Diego	Survival Of Quantum Effects For Observables After Decoherence	Phys. Rev. A.	69	62110
T-DO	Dalvit, Diego	Conditional Quantum Dynamics With Several Observers	Phys. Rev. A.	63	22109
T-DO	Dalvit, Diego	Casimir Forces Between Eccentric Cylinders	Europhysics Lett.	67	517
T-DO	Dalvit, Diego	Model For Resonant Photon Creation In A Cavity With Time-Dependent Conductivity	Phys. Rev. A.	70	33811
T-DO	Dalvit, Diego	Hertz Potentials Approach To The Dynamical Casimir Effect In Cylindrical...	Journal of Optics B		
T-DO	Milonni, Peter	Lasers	Book	--	--
T-DO	Milonni, Peter	Fast Light, Slow Light, And Left-Handed Light	Book	--	--
T-DO	Milonni, Peter	Effects Of Propagation Through Atmospheric Turbulence On Photon Statistics	J. Opt. B	6	S742-S745
T-DO	Milonni, Peter	Influence Of Radiative Damping On The Optical-Frequency Susceptibility	Phys. Rev. A.	69	23814
T-DO	Milonni, Peter	Chirality And Polarization Effect In Nonlinear Optics	Pure and Applied Optics	6	S14
T-DO	Milonni, Peter	Microscopic Theory Of Modified Spontaneous Emission In A Dielectric	Phys. Rev. Lett.	92	53601
T-DO	Milonni, Peter	Effects Of Electrostatic Fields And Casimir Force On Cantilever Vibrations	Phys. Rev. B.	70	85407
T-DO	Milonni, Peter	Atom-Field Interactions With A Frequency-Dependent Reservoir	Phys. Rev. A.	70	53805
T-DO	Milonni, Peter	Simplified Derivation of the Hawking-Unruh Temp. for an Accelerated Observer in Vacuum	Am. J. Physics	1524	72
T-DO	Milonni, Peter	Improving The Sensitivity Of FM Spectroscopy Using Nano-Mech. Cantilevers	Applied Physics Letters	3896	85
T-DO	Milonni, Peter	Microlever Chilled Out	Nature	965	432
T-DO	Paz, Juan	Quantum Algorithms For Phase-Space Tomography	Phys. Rev. A.	69	042319-1-042319
T-DO	Paz, Juan	Optical Simulation Of Quantum Algorithms Using Programmable Liquid-Crystal Displays	Phys. Rev. A.	69	032312-1-032312-9
T-1	Burakovsky, L.	Cold Shear Modulus And Gruneisen Parameter At All Densities	Solid State Communications	132	151
T-1	Burakovsky, L.	Analytic Model of the Gruneisen Parameter at All Densities	J. Physics and Chemistry of Solids	65	1518
T-1	Burakovsky, L.	Unified Analytic Model of the Gruneisen Parameter, Melting Temperature, and Shea	Recent Research Developments in Physical Chemistry	5	193

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Group	Name	Title	Journal	Vol.	Pages
T-1	Burakovsky, L.	High-Pressure Melting of Molybdenum	Phys. Rev. Lett.	92	195701
T-1	Chisolm, Eric	Theoretical Estimates of the Logarithmic Phonon Spectral Moment For Monatomic Li	Phys. Rev. E.	68	31204
T-1	Clements, Brad	A Theory for Plastic-Bonded Materials with A Bimodal Size Distribution of Filler Particles	Modeling and Simulation in Materials Science and Engineering	12	407
T-1	Greeff, Carl	High Pressure Debye-Waller and Gurneisen Parameters of Gold and Copper	AIP Conference Proceedings	706	65
T-1	Greeff, Carl	Modeling Dynamic Phase Transitions in Ti Zr	AIP Conference Proceedings	706	209
T-1	Greeff, Carl	Lattice Dynamics and the High-Pressure Equation of State of Au	Phys. Rev. B.	69	54107
T-1	Holmstrom, Erik	Fermi-Surface Effect on Magnetic Interlayer Coupling	Phys. Rev. C.	70	64408
T-1	Holmstrom, Erik	Magnetic Moments and Exchange Interactions in Fe Multilayers	Phys. Rev. B.	70	94421
T-1	Holmstrom, Erik	Magnetism of Fe Clusters Embedded in a Co Matrix from First-Principles Theory	Phys. Rev. B.	70	174446
T-1	Holmstrom, Erik	On the Sharpness of the Interfaces in Metallic Multilayers	Proc. National Academy of Sciences	101	4742-4745
T-1	Holmstrom, Erik	Magnetic Phase Diagram of Fe Superlattices	J. Magnetism and Magnetic Materials	280	346-57
T-1	Johnson, James	Perturbatim Theory Calculation of the Pressure Electron-Ion System	Physica A	345	722
T-1	Kuprat, Andrew	Effect of Anisotropic Interfacial Energy on Grain Boundary Distributions During Grain Growth	Materials Science Forum	467-70	733-738
T-1	Mas, Eric	A Theory for Plastic-Bonded Materials with A Bimodal Size Distribution of Filler Particles	Modeling and Simulation in Materials Science and Engineering	12	407
T-1	Niklasson, Anders	Interactive Refinement Method for the Approximate Factorization of A Matrix Inverse	Phys. Rev. B.	70	193102
T-1	Niklasson, Anders	Magnetism of Fe Clusters Embedded In A Co Matrix from First-Principles Theory	Phys. Rev. B.	70	174446
T-1	Niklasson, Anders	Ab Initio Linear Scaling Response Theory: Electric Polarizability by Perturbed Projection	Phys. Rev. Lett.	92	193002
T-1	Niklasson, Anders	Density Matrix Perturbation Theory	Phys. Rev. Lett.	92	193001
T-1	Wallace, Duane	Theoretical Estimate of the Logarithmic Phonon Spectral Moment For Monatomic Liquids	Phys. Rev. E.	69	31204
T-1	Wills, John	Photoemission and the Electronic Structure of Pucoga(5)	Phys. Rev. Lett.	91	1764011-14
T-1	Wills, John	Electronic Structure of Delta-Pu and Puco(5) From Photoemission and the Mixed Level Model	Materials Research Society	802	239-244
T-1	Wills, John	A Novel Electronic Configuration of the 5f States In ! -Plutonium as Revealed by the Photo-Electron Spectra	Journal of Electron Spectroscopy and Related Phenomena	135	163-166

Group	Name	Title	Journal	Vol.	Pages
T-3	Beyerlein, Irene	Shear-Lag Model for A Single Fiber Metal Matrix Composite with An Elastic-Plastic Matrix and A Slipping Interface	Int. J. Solid Struct.	41	4197-4218
T-3	Beyerlein, Irene	A Sub-Structure Based Hardening Model for Copper Under Loading Path Changes	Acta Materialia	35A	3763-3774
T-3	Beyerlein, Irene	Time Dependent Micromechanical Behavior In Graphite/Epox Composites...	Journal of Materials Science	38(5)	877-884
T-3	Hunke, Elizabeth	Modeling Sea Ice Transport Using Incremental Remapping	Monthly Weather Review	132	1341-1354
T-3	Hunke, Elizabeth	On the Consistent Scaling of Terms In the Sea Ice Dynamics Equation	J. Phys. Ocean.	34	1776-1780
T-3	Lipscomb, W.	Modeling Sea Ice Transport Using Incremental Remapping	Monthly Weather Review	132	1341-1354
T-3	Moses, Ronald	Ionospheric Profiling Through Radio-Frequency Signals . . . Int'l Reference Ionosphere	Advances in Space Research	34	2096
T-3	Vanderheyden, W.	Parallel Operation of Cartablanca on Shared and Distributed Memory Computers	Concurrency and Computation Practice and Experience	16, 1	61-77
T-4	Cohen, James	Capture Of Negative Exotic Particles By Atoms, Ions, And Molecules	Rep. Prog. Phys.	67	1769-1819
T-4	Cohen, James	Capture Of Antiprotons By Some Radioactive Atoms And Ions	Phys. Rev A.	69	22501
T-4	Cohen, James	Stripping And Excitation In Collisions Between P And He+ (N<=3) . . . Semiclassical Trajectories	Phys. Rev A.	69	32709
T-4	Cohen, James	Enhancement Of Intense Field Ionization Of Rydberg Atoms By Nonhydrogenic Cores And Quantum Mechanical Tunneling	J. Phys. B.	37	525
T-4	Colgan, James	Los Alamos Opacities: Transition From LEDCOP To ATOMIC	14th APS Topical Conference on Atomic Processes in Plasmas	730	168-180
T-4	Colgan, James	Triple-Differential Cross Sections For Two-Photon Double Ionization Of He Near Threshold	J. Phys. B.	38	L35
T-4	Colgan, James	Symmetrized Complex Amplitudes For He Double Photoionization . . .Complex Scaling Methods	Phys. Rev A.	70	64701
T-4	Colgan, James	Time-Dependent Close-Coupling Calculations For The Double Photoionization Of He And H2	J. Phys. B.	37	L377
T-4	Colgan, James	Dielectronic Recombination Data For Dynamic Finite-Density Plasmas. VI: The Boron Isoelectronic Sequence	Astronomy & Astrophysics	420	775
T-4	Colgan, James	A Collisional-Radiative Study Of Lithium Plasmas	Phys. Rev. E.	69	66405
T-4	Colgan, James	Lattice Calculations Of The Photoionization Of Li	Phys. Rev. Lett.	93	53201
T-4	Colgan, James	Dielectronic Recombination Data For Dynamic Finite-Density Plasmas. V: The Lithium Isoelectronic Sequence.	Astronomy & Astrophysics	417	1183

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Group	Name	Title	Journal	Vol.	Pages
T-4	Colgan, James	Double Photoionization Of Helium At High Photon Energies	J. Phys. B.	37	1153
T-4	Collins, Lee	Intense Laser-Induced Recombination: The Inverse ATI Process	Phys. Rev. A.	70	13407
T-4	Collins, Lee	Quantum Molecular Dynamics Simulations Of Shocked Nitrogen Oxide	Phys. Rev. B.	69	224207
T-4	Collins, Lee	Redistributing Rydberg Populations With Half-Cycle Pulses	Phys. Rev. A.	69	41402
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T-10	Hlavacek, William	Design Of Gene Circuits: Lessons From Bacteria	Nat. Rev. Genet.	5	34-42
T-10	Korber, Bette	Heterosexual Transmission Of Envelop-Constrained, Neutralization-Sensitive HIV-1	Science	303	2019-22
T-10	Korber, Bette	Tracking Global Patterns Of N-Linked Glycosylation Site Variation In Highly Variable viral glycoproteins: HIV, SIV and HCV envelopes and influenza hemagglutinin	Gastroenterology	14	1229-46
T-10	Kuiken, Carla	Recombination Following Superinfection By HIV-1	J. of AIDS	18(2)	153-9
T-10	Kuiken, Carla	Tracking Global Patt3erns Of N-Linked Glycosylation Site Variation In Highly Variable Viral Glycoproteins: HIV, SIV And HCV Envelopes And Influenza Hemagglutinin	Global Biochemical Cycles	14 (12)	1229-46
T-10	Kuiken, Carla	Long-Term Survivors In Nairobi: Complete HIV-1 RNA Sequences And Immunogenetic Associations	J. Infect. Dis.	190 (4)	697-701
T-10	Kuiken, Carla	Construction Of An Infectious HIV Type 1 Molecular Clone From An African Patient With Subtype D/C Recombinant Virus	AIDS Res. Hum. Retroviruses	20(9)	1015-8
T-10	Labute, Montiago	An Anderson Impurity Model For Efficient Sampling Of Adiabatic Potential Energy Surfaces Of Transition Metal Complexes	J. Chem. Phys.	121	8221-8230
T-10	Leitner, Thomas	HIV-1 CRF01_AE In Intravenous Drug Users In Hanoi, Vietnam	AIDS Res. Hum. Retroviruses	20	341-345
T-10	Leitner, Thomas	Rapid Epidemic Spread Of HIV-1 Subtype A1 Among Intravenous Drug Users In Latvia And Slower Spread Of Subtype B Among Other Risk Groups	AIDS Res. Hum. Retroviruses	20	245-249
T-10	Leitner, Thomas	A Detailed Picture Of The Origin Of The Australian Dingo, Obtained From The Study Of Mitochondrial DNA	Proc. Ntl. Academy of Sciences of USA	101	12387-12390
T-10	Leitner, Thomas	Minor Nef Gene Alterations After Human Hiv-Dna Immunization	J. of AIDS	18	817-819
T-10	Leitner, Thomas	A Detailed Picture Of The Origin Of The Australian Dingo, Obtained From The Study of Mitochondrial DNA	Proc. Ntl. Academy of Sciences of USA	101	12387-12390
T-10	Leitner, Thomas	Minor Nef Gene Alterations After Human HIV-DNA Immunization	J. of AIDS	18	817-819
T-10	Macken, Catherine	NISAN Statement On Antiviral Resistance Of Influenza Virus	WHO weekly Epidemiological Record	79 (33)	306-8
T-10	Macken, Catherine	Homology Model Of The Structure Of Influenza B Virus HA1	J. General Virology	85	3249-59
T-10	McMahon, B.	Bulk-Solvent And Hydration-Shell Fluctuations, Similar To Alpha And Beta-Fluctuations	Proc. Ntl. Academy of Sciences of USA	101	14408-14413

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T-10	Perelson, Alan	The Analysis Of HIV Dynamics Using Mathematical Models	Book	0	905-912
T-10	Perelson, Alan	Intensification Of Antiretroviral Therapy Accelerates . . . Virus Replication	J. AIDS	35	33-37
T-10	Perelson, Alan	Impact Of Thymectomy On The Peripheral T Cell Pool In Rhesus Macaques Before An . . .	European J. of Physics	35	46-55
T-10	Perelson, Alan	Modeling How Ribavirin Improves Interferon Response Rates In Hepatitis C Virus	Nature	432	922-924
T-10	Perelson, lan	Predicting The Impact Of A Nonsterilizing Vaccine Against Human Immunodeficiency	Journal of Virology	78	11340-11351
T-10	Perelson, Alan	Dynamics Of Intermittent Viremia . . . Virus Type 1 Infections	Journal of Virology	78	10566-10573
T-10	Perelson, Alan	Kinetics Of Virus Specific CD8+ T Cells And The Control Of HIV Infection	Journal of Virology	78	10566-10573
T-10	Perelson, Alan	Estimates Of Intracellular Delay And Average Drug Efficacy Form Viral Load Data	Antiviral Therapy	9	237-246
T-10	Perelson, Alan	Some Scaling Principles For The Immune System	Immunol. Cell Biology	82	127-131
T-10	Perelson, Alan	The Lifespan Of Satellite Cells In Muring Sensory Ganglia Estimated By The Uptake	Exp. Nuerol.	186	99-103
T-10	Perelson, Alan	A Stochastic Model Of Cytotoxic T Cell Responses	J. Theor Bio.	228	227-240
T-10	Perelson, Alan	Modelling The Impact Of Antigen Kinetics On T Cell Activation And Response	Immunol. Cell Biology	82	55-61
T-10	Perelson, Alan	Virus Dynamics And Immune Response During Treatment In Patients Co-Infected With hepatitis C and HIV	J. AIDS	35	103-113
T-10	Perelson, Alan	Modeling The Long-Term Control . . . With Antiretroviral Therapy	Math. Biosci.	188	47-62
T-10	Perelson, Alan	Multiplicity Of Human Immunity Immunodeficiency Virus Infections In Lymphoid Tissue	Journal of Virology	78	8942-8945
T-10	Perelson, Alan	An Age-Structured Model Of HIV Infection That Allows For Variations . . .	Math. Biosci.	1	267-188
T-10	Perelson, Alan	Optimizing Within-Host Viral Fitness: Infected Cell Lifespan And Virion Production	J. Theor Bio.	229	281-288
T-10	Perelson, Alan	Hepatitis B Virus Kinetics And Mathematical Modeling	Sem. Liv. Dis.	24	16-Nov
T-10	Perelson, Alan	Effects Of Antibody On Viral Kinetics In SHIV Infection: Implications For Vaccination	Journal of Virology	78	5520-5522

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T-10	Ribeiro, Ruy	Intensification Of Antiretroviral Therapy. . . Not Eliminate, Ongoing Virus Replication	J. AIDS	35	33-37
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T-10	Ribeiro, Ruy	Modeling The Long-Term Control Of Viremia In HIV-1 Infected Patients	Math. Biosci.	188	47-62
T-10	Ribeiro, Ruy	Effects Of Antibody On Viral Kinetics In SHIV Infection: Implications For Vaccine	Journal of Virology	78	5520-5522
T-10	Ribeiro, Ruy	Hepatitis B Virus Kinetics And Mathematical Modeling	Sem. Liv. Dis.	24	16-Nov
T-10	Ribeiro, Ruy	Kinetics Of Virus Specific CD8+ T Cells And The Control Of HIV Infection	Journal of Virology	78	10096-10103
T-10	Ribeiro, Ruy	Controlling The HIV Epidemic With A Non-Sterilizing Vaccine	Journal of Virology	78	11340-11351
T-10	Sanbonmatsu, K.	Atomic Model Of The Thermus Thermophilus 70S Rimbosome Developed In Silico	Biophys. J.	87(4)	2714-22
T-10	Stajic, Jelena	The Nature Of Superfluidity In Ultracold Fermi Gases Near Freshbach Resonances	Phys. Rev A.	69	63610
T-10	Torney, David	Distributed Sensor Networks For Detection Of Mobile Radioactive Sources	IEEE Trans. on Nuclear Sciences	51	1693-1700
T-10	Torney, David	Radiation Detection With Distributed Sensor Networks	Computing	37	57-59
T-10	Torney, David	A Complete System Of Orthogonal Step Functions	Proc. American Mathematical Society	132	3491-3502
T-10	Tung, C.-S.	Atomic Structure Of The T Thermophlus 70S Ribosome Developed In Silico	Biophys. J.	87	2714-2722
T-10	Tung, C.-S.	Exordium For DNA Codes	J. Comb. Theory	7	369-379
T-10	Tung, C.-S.	Homology Model Of The Structure Of Influenza Virus HA1	J. General Virology	85	3249-3259
T-11	Abanov, Artem	Inelastic Tunneling Spectroscopy In A D-Wave Superconductor	Physica C	246	408-410
T-11	Abanov, Artem	Spin Resonance And High Frequency Optical Properties Of The Cuprates	Phys. Rev. B.	70	100504
T-11	Abanov, Artem	Anomalous Scaling At The Quantum Critical Point In Itinerant Antiferromagnets	Phys. Rev. Lett.	93	255702
T-11	Ahluwalia, Rajeev	Precursors and Poer-Law Statistics of Acoustic Emission And Shape Memory Effect In Martensites	Phys. Rev. B.	70	224105
T-11	Ahluwalia, Rajeev	Pattern Formation In Ferroelastic Transitions	Phase Transitions	77	457-467
T-11	Ahluwalia, Rajeev	Landau Theory For Shape Memory Polycrystals	Acta Materialia	52	209-218

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T-11	Albers, Robert	Landau Theory For Shape Memory Polycrystals	Acta Materialia	52	209
T-11	Albers, Robert	New Pseudo-Phase Structure For Alpha-Pu	Phys. Rev. Lett.	92	95503
T-11	Albers, Robert	Extended X-Ray Absorption Fine Structure Measurements Of Laser-Shocked V And Ti And Crystal Phase Transformations In Ti	Phys. Rev. Lett.	92	95504
T-11	Albers, Robert	Thermal Stabilization Of The HCP Phase In Titanium	Phys. Rev. B.	69	94117
T-11	Albers, Robert	Charge And Dimensional Effects On The Properties Of CaNin	Phys. Rev. B.	69	235115
T-11	Albers, Robert	Extended X-Ray Absorption Fine Structure Measurements Of Laser Shocks In Ti And V And Phase Transformation Ti	Phys. Rev. Lett.	92	95504
T-11	Batista, Cristian	Itinerant Magnetism In Ute	Phys. Rev. Lett.	93	267205
T-11	Batista, Cristian	Itinerant Ferromagnetism In The Periodic Anderson Model	Phys. Rev. B.	68	214430
T-11	Batista, Cristian	Exact Bond Ordered Ground State . . . The Mott Insulator	Phys. Rev. Lett.	92	246405
T-11	Batista, Cristian	Intermediate Coupling Theory Of Electronic Ferroelectricity	Phys. Rev. Lett.	92	187601
T-11	Batista, Cristian	Spin Density Wave Excitations In The Specific Heat Of $La_2Cu_{4.11}$	Phys. Rev. B.	69	174506
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T-11	Batista, Cristian	Condensation Of Triplons In Han Purple Pigment Bacusi206	Phys. Rev. Lett.	93	87203
T-11	Graf, Matthias	1/T1 In The D-Wave Superconducting State With Coexisting Antiferromagnetism	Phys. Rev. B.	69	14505
T-11	Graf, Matthias	Ultrafast Quasiparticle Relaxation Dynamics In Normal Metals And Heavy Fermion Materials	Phys. Rev. B.	69	45114
T-11	Graf, Matthias	The Role Of The Lattice In Gamma Alpha Phase Transition Of Ce	Phys. Rev. Lett.	92	105702
T-11	Graf, Matthias	Lattice Dynamics And The High Pressure Equation Of State	Phys. Rev. B.	69	54107
T-11	Gubernatis, James	Direct Observation Of Itinerant Ferromagnetism In The 5f-Electron System Ute	Phys. Rev. Lett.	93	267205
T-11	Gubernatis, James	Investigating Magnetic Properties By Quantum Monte Carlo Simulations	J. Magnetism and Magnetic Materials	281	240
T-11	Gubernatis, James	Intermediate Coupling Theory Of Electronic Ferroelectricity	Phys. Rev. Lett.	92	187601
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T-11	Kaneshita, Eiji	Local Edge Modes In Doped Cuprates With Checkerboard Polaronic Heterogeneity	J. Phys. Soc. Jpn.	73	3223
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T-11	Lomdahl, Peter	Nanodhydrodynamics Simulations; An Atomistic View of the Raleigh-Taylor Instability	Proc. Ntl. Academy of Sciences (USA)	101	5851-5855
T-11	Lomdahl, Peter	Constant-Stress Hugoniostat Method For Following The Dynamical Evolution	Phys. Rev. B.	70, 1	014103
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T-11	Martin, Ivar	Quantum Limited Sensitivity Of SET-Based Displacement Detectors	Phys. Rev. Lett.	92	18303
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T-11	Martin, Ivar	Dynamics And Melting Of Stripes, Crystals, And Bubbles With Quenched Disorder	Physica D	193	303
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T-11	Mozyrsky, Dima	Effects Of Strong Correlations In Single Electron Traps In Silicon Field Effect	Nanotechnology	4	90
T-11	Mozyrsky, Dima	Output Spectrum Of A Measuring Device At Arbitrary Voltage And Temperature	Europhysics Lett.	67	840
T-11	Mozyrsky, Dima	Quantum Limited Sensitivity Of SET-Based Displacement Detectors	Phys. Rev. Lett.	92	18303
T-11	Nussinov, Zohar	Single Spin Detection And Noise Spectroscopy	SPIE	5472	116
T-11	Nussinov, Zohar	Spin And Current Variations In Josephson Junctions	J. Low Temp. Phys.	30	N. 7/8

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T-11	Nussinov, Zohar	Orbital Order In Classical Models Of Transition-Metal Compounds	Europhysics Lett.	67	990-996
T-11	Nussinov, Zohar	Duality In 2+1 Quantum Elasticity: Superconductivity And Quantum Nematic Order	Annals of Physics	310/1	181-260
T-11	Nussinov, Zohar	Duality In 2+1 Quantum Elasticity: Superconductivity And Quantum Nematic Order	Annals of Physics	310/1	181-260
T-11	Nussinov, Zohar	Novel Spin Dynamics In A Josephson Junction	Phys. Rev. Lett.	92	107001
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T-11	Saxena, Avadh	On Some New Classes Of Mkdv Periodic Solutions	J. Phys. A.	70	245210
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T-11	Saxena, Avadh	Domain Wall Junctions As Vortices: Static Structure	J. Phys. A.	37	8595
T-11	Saxena, Avadh	Viscoeleastic Properties Of Dynamically Asymmetric Binary Fluids Under Sher Flow	Phys. Rev. B.	70	11506
T-11	Saxena, Avadh	Origin Of Magnetic And Magnetoelastic . . . In Ferroic Materials	Phys. Rev. Lett.	92	197203
T-11	Saxena, Avadh	Soliton Lattice And Single Soliton Solutions Of The Associated LAM/'E And LAM/'E Potentials	J. Math. Phys.	45	2323
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T-11	Saxena, Avadh	Pattern Formation In Ferroelastic Transitions	Phase Transitions	77	457
T-11	Saxena, Avadh	Atomic Scale Elastic Textures Coupled To Electrons In Superconductors	J. Superconductivity	58	73
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T-11	Trugman, Stuart	Ultrafast Quasiparticle Relaxation Dynamics In Normal Metals And Heavy Fermion Materials	Phys. Rev. B.	69	45114
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T-12	Asthagiri, Dilip	Inner Shell Definition and Absolute Hydration Free Energy . . . Ab Initio Molecular Dynamics	Physical Chemistry Chemical Physics	6	1966
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T-12	Asthagiri, Dilip	Pressure Denaturation Of Staphyloccocal Nuclease Studied By Neutron Small-Angle	Biophys. J.	87	3479-3492
T-12	Asthagiri, Dilip	Hydration And Mobility Of HO-(Aq)	Proc. Ntl. Academy of Sciences of USA	101	7229-7233

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T-12	Batista, Enrique	Density Functional Investigations Of The Properties And Thermochemistry Of UF6 A	J. Chem. Phys.	121	2144
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T-12	Challacombe, W.	All-Electron Density-Functional Studies Of Hydrostatic Compression Of Pentaeryth	Phys. Rev. B.	69	35116
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T-12	Goupalov, Serguei	Exciton Dephasing In Self-Assembled Cdse Quantum Dots	Phys. Rev. B.	70	73302
T-12	Hanson, David	An Explicit Polymer And Node Network Model To Compute Micromechanical Properties	Polymer	45	1055
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T-12	Hay, Philip	Defining Electronic Excited States Using . . . Theory Calculations	J. Phys. Chem. A	108	3527
T-12	Henkelman, G.	Structure And Mobility Of Defects Formed From Collision Cascades In MgO	Phys. Rev. Lett.	92	115505
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T-12	Holian, Brad	Dislocation Nucleation Induced By A Shock . . . Elastic Calculations	Phys. Rev. B.	68	144111
T-12	Kendrick, Brian	Quantum Hydrodynamics: Application To N-Dimensional Reactive Scattering	J. Chem. Phys.	121	2471
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T-12	Koslowski, M.	A Noise Induced Transition In The Deformation Of Metals	Phys. Lett. A.	322	207-212
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T-12	Koslowski, M.	Avalanches And Scaling In Plastic Deformation	Phys. Rev. Lett.	93	125502
T-12	Kress, Joel	Quantum Molecular Dynamics Simulations Of Shocked Nitrogen Oxide	Phys. Rev. B.	69	224207
T-12	Kress, Joel	An Alternative Multipolar Expansion For Intermolecular Potential Functions	J. Chem. Phys.	120	5558
T-12	Kress, Joel	Sliding Friction At Compress Ta/Al Interfaces	AIP Conference Proceedings	706	565

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T-12	Kress, Joel	Quantum Molecular Dynamics Calculations Of Radiative Opacities	AIP Conference Proceedings	706	289
T-12	Kress, Joel	Hydration And Mobility Of HO-(Aq)	Proc. Ntl. Academy of Sciences of USA	101	7229
T-12	Lesar, Richard	Modeling And Simulation Of Biomaterials	Annual Review of Materials Research	34	279-314
T-12	Lesar, Richard	Dislocation Motion In Thin Cu Foils: A Comparison Between Computer Simulations And Experiment	Acta Materialia	52	1535-1542
T-12	Lesar, Richard	Multipole Representation Of The Elastic Field Of Dislocation Ensembles	Phys. Rev. B.	69	174102
T-12	Lesar, ichard	Modeling Cross-Hatch Surface Morphology In Growing Mismatched Layers. Part II: P	Journal of Applied Physics	95	6032-6047
T-12	Lesar, Richard	Incorporation Of Structure In Continuous Dislocation Theory	Phys. Rev. B.	69	172105
T-12	Lesar, Richard	Avalanches And Scaling In Plastic Deformation	Phys. Rev. Lett.	93	125502
T-12	Lesar, Richard	Ambiguities In The Calculation Of Dislocation Self Energies	Physica Status Solidi	241	2875-2880
T-12	Lesar, Richard	A Noise Induced Transition In The Deformation Of Metals	Phys. Lett. A.	332	207-212
T-12	Lesar, Richard	Dislocation Structures And The Deformation Of Materials	Phys. Rev. Lett.	93	265503
T-12	Lesar, Richard	A Kinetic Monte Carlo Simulation Of Thin Film Growth By Physical Vapor Deposition	Mater. Sci. Eng. A	391	390-401
T-12	Magyar, Rudolph	A Joint Theoretical And Experimental Study Of Phenylene-Acetylene Molecular Wire	Phys. Rev. Lett.	401	149
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T-12	Magyar, Rudolph	Exact-Exchange DFT Calculations On Noble-Gas Solids	Phys. Rev. B.	69	45111
T-12	Martin, Richard	Natural Transition Orbitals	Encyclopedia of Comp. Chemistry	.	.
T-12	Martin, Richard	Molecular And Electronic Structure Of Platinum . . .(Phosphenium)-(N-Heterocyclic Carbene)]	Angewandte Chem. Int. Ed.	43	1955
T-12	Martin, Richard	Predicting 9be Nuclear Magnetic Resonance Chemical Shielding Tensors	J. Am. Chem. Soc.	126	14651
T-12	Martin, Richard	Synthesis And Reactivity Of The Hydrido- And Alkylrhenium Methylidene Complexes	J. Am. Chem. Soc.	126	14804
T-12	Martin, Richard	Three-Pulse Photon-Echo Spectroscopy As A Probe Of The Photoexcited Electronic	Phys. Rev. B.	70	161404
T-12	Martin, Richard	Density Functional Investigations Of The Properties And Thermochemistry Of Ufn A	J. Chem. Phys.	121	11104

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T-12	Martin, Richard	Molecular And Electronic Structure In The Metal-To-Ligand Charge Transfer Excite	J. Phys. Chem.	108	3618
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T-12	Masunov, Artem	Calculations Of The Third-Order Nonlinear . . . With A Time-Dependent Density Functional Theory	Chem. Phys. Lett.	392	444
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T-12	Pack, Russell	Some Symmetry-Induced Isotope Effects In The Kinetics Of Recombination Reactions	J. Chem. Phys.	121	800
T-12	Piryatinski, Andrei	Light Amplification Using Inverted Coe/Shell Nanocrystals: Towards Lasing In The Single-exciton Regime	J. Phys. Chem. B	108	10625
T-12	Piryatinski, Andrei	Inverted Core/Shell Nanocrystals Continuously Tunable Between Type-I And Type-II	Nano Lett.	4	1485
T-12	Piryatinski, Andrei	Three-Pulse Photon-Echo Spectroscopy As A Probe Of Photoexcited Electronic State	Phys. Rev. B.	70	1614404
T-12	Piryatinski, Andrei	Y'Possible Existence Of Photoexcited Breathers In Conducting Polymers	Phys. Rev. B.	70	233203
T-12	Pratt, Lawrence	Inner Shell Definition And Absolute Hydration Free Energy Of K+(Aq) . . . Ab Initio Molecular Dynamics	Physical Chemistry Chemical Physics	6	1966
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T-12	Tretiak, Sergei	Two Photon Absorption In Three-Dimensional Chromophores Based On [2.2] - Paracyclophane	J. Am. Chem. Soc.	126	11529-11542
T-12	Tretiak, Sergei	Light Amplification Using Inverted Core/Shell Nanocrystals: Towards Lasing In The Single-exciton regime	J. Phys. Chem. B	108	10625-10630
T-12	Tretiak, Sergei	Calculations Of The Third-Order Nonlinear. . . Time-dependent Density Functional Theory	Chem. Phys. Lett.	392	444-451
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T-12	Voter, Arthur	Parallel Replica Dynamics With A Heterogeneous Distribution Of Barriers: Application to n-hexadecane pyrolysis	J. Chem. Phys.	121	9808-9819
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T-13	Ben-Naim, Eli	LXR Activation And Cholesterol Efflux From A Lipoprotein Depot In Vivo	Biochimica Et Biophysica Acta	1686	24-29
T-13	Ben-Naim, Eli	Winning Quick And Dirty: The Greedy Random Walk	J. Phys. A: Math. Gen.	37	11321-11331
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T-13	Chertkov, Michael	Inelastic Interchannel Collisions Of Pulses In Optical Fibers In The Presence Of Third-Order Dispersion	Journal of the Optical Society of America B	21	18-23
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T-13	Reichhardt, C.	Nonlinear Dynamics, Rectification, . . . DC And Circular AC Drives	Phys. Rev. E.	69	56115
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T-16	Sierk, Arnold	Cluster Expression in Fission and Fusion in High-dimensional Macroscopic-microscopic Calc.	Nucl. Physics	A738	499-502
T-16	Sierk, Arnold	Fission And Fusion At The End Of The Periodic System	Prog. Theor. Phys. Suppl.	154	21-30
T-16	Sierk, Arnold	CEM2K And LAQGSM Codes As Event Generators . . . Cosmic-Ray-Propagation App.	Advances in Space Research	34	1288-1296
T-16	Sierk, Arnold	Five-dimensional Fission Barrier Calculations from ^{70}Se to ^{252}Cf	Phys. Rev. Lett.	92	72501
CNLS	Ecke, Robert	Traveling Waves In Rotating Rayleigh-Benard Convection	Phys. Rev. E.	69	056301/1-9
CNLS	Ecke, Robert	Physical Mechanism of the Two-Dimensional Enstrophy Cascade	Phys. Rev. Lett.	91	214501/1-4
CNLS	Ecke, Robert	Light Scattering on Oceanic Turbulence	Applied Optics	43	5662-5668
CNLS	Ecke, Robert	Coherent Vortices In Two-Dimensional Turbulence	CHAOS	14	S12
CNLS	Huang, C.-F.	The Role of RNA Editing In Dynamic Environments	9th Int'l Conf. on the Sim. & Synthesis of Living System	1	489-494
CNLS	Huang, C.-F.	A Systematic Study of Genetic Algorithms with Genotype	Proc. Genetic & Evolutionary Comp. Conf.	1	1233-1245
CNLS	Kos, Simon	Statistical Physics: Hear the Noise	Nature	431	29

Group	Name	Title	Journal	Vol.	Pages
CNLS	Kos, Simon	Energy-Transfer Pumping of Semiconductor Nanocrystals Using an Epitaxial Quantum Well	Nature	429	642
CNLS	Kos, Simon	Broken Particle-Hole Symmetry at Atomically Flat A-Axis $YBa^2Cu^3O^7$ Interfaces	Phys. Rev A.	93	107004
CNLS	Kos, Simon	Gaussian Fluctuation Corrections to the BCS Mean-Field Gap Amplitude at Zero Temperature	Phys. Rev. B.	70	214531
CNLS	Neufeld, Zoltan	Noise-Sustained Oscillation and Synchronization of Excitable Media with Stirring	SPIE	5471	193
CNLS	Neufeld, Zoltan	Reaction Front Propagation In A Turbulent Flow	Phys. Rev. E.	70	26307
CNLS	Neufeld, Zoltan	Homogenization Induced by Chaotic Mixing and Diffusion in an Oscillatory Chemical Reaction	Phys. Rev. E.	70	26216
CNLS	Ramaprabhu, P.	On the Initialization of Rayleigh-Taylor Simulations	Physics of Fluids	16	L59-L62
CNLS	Ramaprabhu, P.	A Comparative Study of the Turbulent Rayleigh-Taylor (RT) Instability Using High-	Physics of Fluids	16	1668-1693

Appendix B
Los Alamos Unlimited Releases (LA-URs)

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LANL Group	Author(s)	Title	LAUR No.
LANSCE-3 LANSCE-3 LANSCE-3 T-16 T-16	Fotiadis, Nikolaos Nelson, Ronald Devlin, Matthew Chadwick, Mark Talou, Patrick	Cross Sections for Gamma-Ray Production in the ^{191}Iridium(n,n!) Reactions	04-0016
X-5 T-16 X-5	Mashnik, Stepan Gudima, K. Sierk, Arnold Prael, Richard	Improved Intranuclear Cascade Models for the Codes CEM2K and LAQGSM	04-0039
  X-5 T-16 X-5	Iwase, Hiroshi Iwata, Yoshiyuki Mashnik, Stepan Sierk, Arnold Prael, Richard	Neutron Spectra from Intermediate-Energy Nucleus-Nucleus Reactions	04-0040
T-12 MST-STC T-12 T-12 T-11	Redondo, Antonio Reagor, David Choi, Chu Sabourin, Nicaulas Usheva, Anny	Capacitance-Derived Dielectric Constants Demonstrate Differential Preinitiation Complexes in TBP-Independent and TBP-Dependent Transcription	04-0063
T-DO T-DO T-DO	Zurek, Wojciech Cucchietti, Fernando Paz, Juan	Gaussian Decoherence From Random Spin Environments	04-0070
T-8	Habib, Salman *et al*	A Method to Constrain the Mass Power Spectrum Using the Lyman Alpha Forest Without Assumptions About the Absolute Level of the QUASAR Continuum	04-0072
T-16	Pitcher, Eric	^{148}Gd Production Cross Section Measurements for Accelerator Target Facilities	04-0074
T-16 T-16	Buervenich, Thomas Madland, David	Progress in Extended Lagrangians or Relativistic Point-Coupling Models	04-0091
T-1	Schlei, Bernd	Simulations of Relativistic Heavy-ion Collisions: Hydrodynamics at Work!	04-0092
T-DO	Dalvit, Diego	Casimir Force Between Eccentric Cylinders	04-0093
T-12 CNLS T-13	Reichhardt, Cynthia Reichhardt, Charles Hastings, Matthew	Nonlinear Dynamics, Rectification, and Phase Locking for Particles on Symmetrical Two-Dimensional Periodic Substrates with DC and Circular AC Drives	04-0095
T-6 T-6 T-16 T-DO X-4 X-4	Hayes-Sterbenz, A. Jungman, Gerard Lynn, John Solem, Johndale Girard, Britton Sterbenz, Stephen	Effects of the ^{77}Ev Isomer of ^{235}U	04-0170
T-3 T-3	Torres, David Orourke, Peter	Unstructured KIVA	04-0172
T-11	Abanov, Artem	The Spin Resonance and High Frequency Optical Properties of the Cuprates	04-0173
T-6 T-6 T-6	Warren, Michael Fryer, Christopher Goda, Michael Joseph, Ryan	Software Technology to Enable Reliable High-Performance Distributed Disk Arrays: First Year Progress Report	04-0175
T-12 T-12 T-12 T-12	Babikov, Dmitri Kendrick, Brian Walker, Robert Pack, Russell	Quantum Origin of Anomalous Isotope Effect in Ozone Formation	04-0183
T-12	Challacombe, W.	Linear Scaling Electronic Structure Theory: From Density Matrices To Response Functions	04-0185

LANL Group	Author(s)	Title	LAUR No.
T-12 T-12	Tretiak, Sergei Franco, Ignacio Chernyak, V.	Exciton Sizes in Conducting Polymers Described by Time-dependent Density Functional Theory	04-0187
T-12 T-12	Redondo, Antonio Lesar, Richard	Modeling and Simulation of Biomaterials	04-0188
T-14	Strachan, Alejandro	Non-Equilibrium Melting and Crystallization of a Model Lennard-Jones System	04-0231
T-16	Chadwick, Mark	Surrogate Reaction	04-0239
T-7	Li, Shengtai	Adaptive Mesh Refinement and its Application to MHD	04-0241
T-7 T-7	Loubere, Raphael Shashkov, Mikhail	Polygonal Untangling and Smoothing Used in Arbitrary-Langrangian-Eurlerian Compressible Fluid Flow Context	04-0242
T-16 T-16 T-16	Möller, Peter Madland, David Sierk, Arnold Iwamoto, Akira	Exploring High-Dimensional Fission Potential-Energy Landscapes	04-0245
T-7 T-7	Loubere, Raphael Shashkov, Mikhail	ALE Inc.: A 2D arbitrary-langrangian-eurlerian code on polygonal staggered grids for compressible hydrodynamic problems	04-0247
T-4 T-4	Hakel, Peter Kilcrease, David	Chemeos: a new chemical-picture-based model for plasma equation-of-state calculations	04-0260
T-DO	Bishop, Alan	Theoretical Division Self-Assessment for 2003	04-0268
  T-16 T-16	Iwamoto, A. Ichikawa, T. Möller, Peter Sierk, Arnold	Cluster Expression in Fission and Fusion in High-Dimensional Macroscopic-Microscopic Calculations	04-0284 04-0287
T-16	Liu, Lon-Chang Tomaselli, Maeco	Probing Nuclear Correlations with (E,E'P) and E,E'D) Reactions	04-0289
T-8 P-23	Nieto, Michael Charlton, Michael Holzscheiter, M.	The Route to Ultra-Low Energy Antihydrogen	04-0297
T-7	Lipnikov, K.	The Mimetic Finite Difference Discretization of Diffusion Problem or Unstructured Polyhedral Meshes	04-0310
T-4	Sherrill, Manolo	Cats Code Conversion from F77 to F90	04-0343
T-4 T-4 T-4 T-4 T-4 T-4	Abdallah, Joseph Hakel, Peter Kilcrease, David Magee, Norman Mazevet, Stephane Sherrill, Manolo	Atomic, The New T-4 Opacity Code	04-0344
T-4	Colgan, James *et al*	Lattice Calculations of the Photoionization of Li	04-0345
T-4 T-15 X-1	Csanak, George Murillo, Michael Daughton, William	Exact Treatment of Ion Collective Modes in the Fermi Golden Rule (FGR) Description of Temperature Relaxation	04-0346
T-4 T-4	Schneider, Barry Collins, Lee	Finite Element Discrete Variable Method for the Solution of the Time-Dependent Schroedinger Equation	04-0347
T-7 T-7	Tartakovsky, D. Iu, Dongbin	Uncertainty Quantification for Flow in Highly Heterogeneous Porous Media	04-0349
T-7 T-7	Tartakovsky, D. Xiu, Dongbin	A Two-Scale Non-Perturbative Approach to Uncertainty Analysis of Diffusion in Random Composites	04-0350
MST-8 X-7 T-3 T-3 NMT-16	Thissell, William Tonks, Davis Harstad, Eric Maudlin, Paul Schwartz, Daniel	Damage Quantification and Simulation of LFYER Plate Spallation and Round Notched Tensile Experiments	04-0351
T-15	Murillo, Michael	Strongly Coupled Plasma Physics and High Energy-Density	04-0363

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LANL Group	Author(s)	Title	LAUR No.
T-8 T-8	Xu, Yongzhong Habib, Salman	Measurements of Cosmological Parameters Using Long Duration Gamma-Ray Bursts	04-0364
 T-16	Jones, E. Buervenich, T.	Unexpected Decrease in Moment of Inertia Between N=98-100 in ^{162,164}Gd	04-0367
T-16 T-16 T-16	Hale, Gerald Page, Philip Carlson, Joseph	Data for the Thermonuclear Reactions	04-0368
T-12 CNLS MST-7 MST-7 MST-8 MST-8 MST-8	Hanson, David Hawley, Marilyn Wrobleski, Debra Orler, Edward Houlton, Robert Chitanvis, Kiran Brown, Geoffrey	Mechanical Properties and Filler Distribution as a Function of Filler Content in Silica Filled PDMS Samples	04-0378
LANSCE-3 LANSCE-3 LANSCE-3 T-16 T-16 T-16 D-5 T-6 T-6 X-5	Nelson, Ronald Fotiadis, Nikolaos Devlin, Matthew Talou, Patrick Chadwick, Mark Macfarlane, Robert Trellue, Holly Hayes-Sterbenz, A. Jungman, Gerard White, Morgan	New ^{193}I(n,n'!)^{193}Ir Evaluated Nuclear Cross Sections for Radchem	04-0387
T-14	Strachan, A.	Equilibrium Melting Point and Solid-Liquid Interfacial Energy Determined from Non-Equilibrium Melting and Crystallization	04-0390
T-11 T-11 T-DO	Ahn, Keun Hyuk Lookman, Turab Bishop, Alan	Model for Multiphase Coexistence in Perovskite Manganites	04-0397
 T-11	Ruden, P. Smith, Darryl	Theory of Spin Injection Into Conjugated Organic Semiconductors	04-0398
T-11 X-7 X-4 T-12	Kadau, Kai Germann, Timothy Hadjiconstan, N. Dimonte, Guy Holian, Brad	Nanohydrodynamics Simulations of the Rayleigh-Taylor Instability	04-0400
T-16 T-16	Möller, Peter Sierk, Arnold Ichikawa, T. Iwamoto, Akira	Fission and Fusion at the End of the Periodic System	04-0405
T-6 T-8	Warren, Michael Teodoro, Luis	How Precise Are the Mass Distributions Derived from n-body Simulations?	04-0425
T-10	Mokili, John *et al*	Genetic Diversification and Recombination of HIV-1 Group M in Kinshasa, Democratic Republic of Congo	04-0447
T-16	Möller, Peter	Global Calculations of Fission Barriers and Beta-Decay Properties of Neutron-Rich Nuclei	04-0448
T-16	Lynn, John	The Role of Intermediate Structure and Level Fluctuations in Fission Cross Section Calculations	04-0449
T-DO	Milonni, Peter	Simplified Derivation of the Hawking-unruh Temperature for an Accelerated Observer in . . .	04-0450
T-12 CNLS	Reichhardt, C. Reichhardt, Charles	Rectification and Flux Reversals for Vortices Interacting with Triangular Traps	04-0451
CNLS	Kos, Simon	Effect of Particle Motion on Spin Noise	04-0457
  T-10	Hershberger, Karen Kurian, Jessica Korber, Bette Letvin, Norman	Killer-Cell IG-Like Receptors (KIRS) of the African-Origin Sabaeus Monkey: Evidence for Recombination Events in the Evolution of KIRs	04-0463

LANL Group	Author(s)	Title	LAUR No.
T-3 T-3 T-3	Addessio, Francis Zuo, Qiuhai Maudlin, Paul	Materials Modeling with Application to the Actinides	04-0482
X-5 T-16	Mashnik, Stepan Gudima, K. Sierk, Arnold	LAQGSM - A Code for Simulating Particle-Particle, Particle-Nucleus, and Nucleus-Nucleus Interactions at Intermediate and Higher Energies	04-0542
MST-8 T-3 MST-8	Lebensohn, R. Maudlin, Paul Tome, Carlos	Viscoplastic Self Consistent Modeling of the Anisotropic Behavior of Voided Polycrystals	04-0551
T-12	Voter, Arthur	Accelerated Molecular Dynamics Methods	04-0555
T-12	Lesar, Richard	Computational Modeling of Materials	04-0556
T-12	Goupalov, Serguei Sunis, Robert	Relative Intensities of Zero Phononline and Acoustic Phonon Sidebands in Linear Absorption Spectra of Semiconductor Quantum Dots	04-0557
T-3 T-14	Zuo, Qiuhai Dienes, John	Modeling Fracture and Damage in Ceramics Via Statistical Crack Mechanics	04-0568
T-16	Pitcher, Eric	MCNPX Extensions Version 2.5.0	04-0570
T-16	Möller, Peter	Cranking the Folded-Yukawa Potential	04-0601
T-8 T-8	Mottola, Emil Mazur, Pawel	Dark Energy and Condensate Stars: Casimir Energy in the Large . . .	04-0659
T-8 T-8	Mottola, Emil Mazur, Pawel	Gravitational Vacuum Condensate Stars	04-0660
CNLS CNLS T-11 T-DO	Voulgarakis, Nikos Kaloskas, George Rasmussen, Kim Bishop, Alan	Temperature Dependent Signatures of Coherent Vibrational Openings in DNA	04-0662
T-3	Jones, Philip	Conservative Regridding for Geodessic Climate Models	04-0690
T-3 T-3 T-3	Vanderheyden, W. Zhang, Duan Zuo, Qiuhai	Development of Advanced Computational Algorithms for the Virtual Testing of Military Systems for Survivability and Design Studies	04-0711
T-3 T-3	Mousseau, Vincent Knoll, Dana	A Comparison Between an Implicitly Balanced Solution and a Linearized and Operator Split Solution of the Thermal Hydraulic Equations	04-0712
T-3 EES-IGPP	Maltrud, Mathew Peacock, Synte	Transit Time Distributions in a Global Ocean Circulation Model	04-0714
EES-IGPP T-3	Peacock, Synte Maltrud, Mathew	The Functional Form of the Ocean Transit Time Distributions, and Potential for Prediction of Interior Tracer	04-0715
MST-8 CNLS T-3 MST-8 T-3 MST-8	Cerreta, Ellen Gray, George Maudlin, Paul Xue, Qing Bronkhorst, Curt Cady, Carl	Shear Localization: Experiments and Characterization	04-0719
T-7 CCS-2	Shashkov, Mikhail Carlson, Neil	Numerical Methods for Simulation of Heating Through Electromagnetic Induction	04-0721
T-7 T-7	Garimella, Rao Shashkov, Mikhail	Polygonal Surface Mesh Optimization	04-0722
T-7	Austin, Travis	A Least-Squares Method for the Linear Boltzmann Equation in Fokker-Planck Limit	04-0723
T-6	Herwig, Falk	The s-Process in Low- and Intermediate Mass Stars	04-0724
T-6 X-1 T-6 T-16 CCS-4	Heger, Alexander Li, Hui Fryer, Christopher Carlson, Joseph Budge, Kent	Coming Out of the Cosmic Dark Ages - the First Stars in the Universe	04-0725

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LANL Group	Author(s)	Title	LAUR No.
CCS-4 T-3 T-3	Carrington, David Mousseau, Vincent Knoll, Dana	Preconditioning Radiation Diffusion	04-0726
T-12	Hanson, David	Micro-mechanical Modeling of Binder	04-0740
T-15	Lapenta, Giovanni	Reply to the Comment on the "Solitonlike Solutions of the Grad-Shafranov Equation"	04-0751
T-12 T-12 T-12	Chao, Sheng Der Kress, Joel Redondo, Antonio	A Coarse-grained Rigid Blub Model for Polymer Simulations	04-0752
T-12	Chao, Sheng Der	Multiscale Molecular Simulations: From Atomistic to Coarse Grained Models	04-0753
T-12	Lesar, Richard	Computational Modeling of Materials: Metals to Biomaterials	04-0754
T-12	Voter, Arthur	Accelerated Molecular Dynamics Methods	04-0755
T-3	Eggert, Kenneth	Computing Surface Water Hydraulics for the Amazon Basin Using a Topographically Conforming Grid on Parallel Computing Clusters	04-0776
T-3 T-3	Kashiwa, Bryan Rauenzahn, Rick	A Study of Two-Body Forces in Fluidization	04-0777
T-3	Beyerlein, Irene *et al*	Heterogeneity in Texture Development in Single Pass Equal Channel Angular Extrusion	04-0778
T-3	Beyerlein, Irene	Three Dimensional Modeling of Plastic Deformation Flow During ECAP	04-0779
T-3 MST-6	Beyerlein, Irene Alexander, David	Mechanical Properties of High Purity Copper Processed by Equal Channel Angular Extrusion	04-0780
T-3	Beyerlein, Irene Tome, Carlos	Analytical Modeling of Material Flow in Equal Channel Angular Extrusio (ECAE)	04-0781
T-3	Zhou, Chaohui Schadler, Linda Beyerlein, Irene	Stress Concentrations in Graphite/Epoxy Model Composites During Creep at Room Temperature and Elevated Temperatures	04-0782
T-13 T-13 T-13	Berman, Gennady Borgonovi, Fausto Tsifrinovich, V.	A Model for Quantum Jumps in Magnetic Resonance Force Microscopy	04-0794
T-6	Colgate, Stirling	Star Formation and Cosmic Massive Black Hole Formation, a Universal Process Organized by Angular Momenta	04-0818
T-3	Dukowicz, John	Improved Density Coordinates of the Potential Density Type for Layer Models	04-0819
T-12 B-4 T-12	Sansinena, J.-M. Swanson, Basil Redondo, Antonio *et al*	Micro-patterning of Ionic Reservoirs Within a Double Bilayer Lipid Membrane to Fabricate a 2D Array of Ion-Channel Switch Based Electrochemical Biosensors	04-0820
T-1	George, Denise Johnson, James	Grizzly User's Manual Addendum	04-0830
CNLS	Ramaprabhu, P. Andrews, M	On the Use of Experimental Data to Initialize Rayleigh-Taylor Simulations	04-0867
CNLS	Neufeld, Zoltan	Synchronization of Oscillatory Media by Stirring	04-0868
CNLS MST-10	Zhang, Jinsuo Li, Ning	Review of the Studies on Fundamental Issues in LBE Corrosion	04-0869
T-DO CNLS	Milonni, Peter Eberly, Joseph	Lasers-Second Edition	04-0870
T-7	Garimella, Rao	MSTK: mesh toolkit, V 1.2-draft	04-0878
T-11 T-11 T-11	Ahn, Keun Hyuk Lookman, Turab Saxena, Avadh	Unified Description of Lattice Distortions from Atomic Scale to Continuum and its Application to CMR Manganites	04-0880

LANL Group	Author(s)	Title	LAUR No.
T-11 T-11 T-11	Ahluwalia, Rajeev Lookman, Turab Saxena, Avadh	Three Dimensional Simulations of Martensitic Transformations with Volume Changes	04-0882
T-12 T-12	Pack, Russell Walker, Robert	Some Symmetry-Induced Isotope Effects in the Kinetics of Recombination Reactions	04-0884
T-DO	Bishop, Alan, *et al*	Theoretical Division Activities in Support of the Nuclear Weapons Program for 2003 (multiple articles)	04-0916
T-3 T-3 T-	Zhang, Duan Vanderheyden, W. Zou, Qisu	Progress in HE Ignition Modeling	04-0921
T-3	Kashiwa, Bryan	An Eulerian-Lagrangian Approach for Large Deformation Fluid Structure Interaction Problems	04-0922
T-3 T-14	Zuo, Qiuhai Dienes, John	On the Stability of Penny-Shaped Cracks with Friction: The Five Types of Brittle Behavior	04-0923
T-10 T-10	Young, Cho Foley, Brian *et al*	Molecular Study on HIV-1 Outbreak in Korean Hemophhilicas B Through Clotting Factor 9	04-0964
T-10	Ventura, Alejandra *et al*	Inferring the Underlying Calcium Currents from Fluorescent Images: A model independent method to determine CA2+ release fluxes from fluorescent images.	04-0965
T-10 T-10	Faeder, James Torigoe, Chikako Goldstein, Byron	Is There Kinetic Proofreading Beyond Lat?	04-0966
T-10 T-10 T-10 T-10	Faeder, James Blinov, Mikhail Hlavacek, William Goldstein, Byron	Investigating the Role of Complex Formation in Immunoreceptor Signaling Using Mathematical Modeling	04-0967
T-16	Reddy, Sanjay	The Micro-Physics of Neutrino Transport at Extreme Density	04-0969
T-15	Lapenta, Giovanni Zuccaro, G. Maizza, G.	Particle in Cell Simulation of Combustion Synthesis of Tic Nanoparticles	04-0994
CNLS T-13	Kamenev, Dmitry Berman, Gennady *et al*	Modeling Full Adder in Ising Spin Quantum Computer with 1000 Qubits Using Quantum Maps	04-1072
T-13	Ben-Naim, Eli Krapivsky, Paul	Size of Outbreaks Near the Epidemic Threshold	04-1073
T-12 T-12	Nemeth, Karoly Challacombe, W.	A New View on the Geometry Optimization of Large Molecules	04-1097
CCS-2 T-16 T-16	Hanson, Kenneth Talou, Patrick Kawano, Toshihiko	Probabilistic Interpretation of Peelle's Pertinent Puzzle and Its Resolution	04-1101
T-8	Abazajian, Kevork *et al*	Cosmology and the Halo Occupation Distribution from Small-scale Galaxy Clustering in the SDSS	04-1121
T-8 EES-11 EES-11 T-6 D-1	Habib, Salman Tencate, James Pasqualini, D. Heitmann, Katrin Higdon, David	Nonlinear Dynamics of Driven Sandstone Rods	04-1122
T-7	Kurien, Susan	Symmetry Breaking in Turbulent Flow Statistics – Rotation and Reflection	04-1123
T-7	Kurien, Susan	Helicity and the Kolmogorov Phenomenology of Turbulent Flow	04-1124
T-10 T-10	Perelson, Alan Dixit, Narendra	Influence of Drug Pharmacokinetics on HIV Pathogenesis and Therapy	04-1125
T-10	Perelson, Alan De Boer, Rob	Estimating Division and Death Rates from CPSE Data	04-1126
T-10	Leitner, Thomas *et al*	Development of HIV-1 X4 Pheotype in Two Non-Subtype B Infected Children Born to Mothers Carrying X4 Virus Is Not Linked To HIV-1 Transmission of X4	04-1127

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LANL Group	Author(s)	Title	LAUR No.
T-10	Korber, Bette *et al*	Analysis of HIV-1 GP 120 Subtype B and C V3 Peptide Motifs For Induction of Neutralizing Antibodies Against HIV-1 Primary Isolates	04-1128
T-10 T-10	Tung, C.-S. Leitner, Thomas *et al*	Recombination, 3D Network Structure Multiple Transmission and Subpopulation Frequency Shifts in a Mother-to-Child Transmission Care	04-1129
T-15 T-15 P-22 MST-10 MST-10	Daligault, Jerome Murillo, Michael Benage, John Clarke, Steven Rodriguez, George	Molecular Dynamics Studies of Neon Diffusion in Carbon-Oxygen White Dwarfs	04-1130
T-10 T-10 T-10	Goldstein, Byron Coombs, Daniel Wofsy, Carla Dembo, Micah	Equilibrium Thermodynamics of Cell-Cell Adhesion Mediated by Multiple Ligand-Receptor Pairs	04-1131
T-10	Leitner, Thomas *et al*	Shifts in Evolving Subpopulation Frequencies After Multiple HIV-1 Mother-To-Child Transmission	04-1132
T-DO	Milonni, Peter	Fast Light, Slow Light, and Left-Handed Light	04-1143
T-4 X-7 T-6	Mazevet, Stephane Saumon, Didier Herwig, Falk	White Dwarf Cosmochronology	04-1155
T-6 T-6	Timmes, Francis Herwig, Falk	The Second Stars	04-1158
T-8	Friedland, A. *et al*	Solar Neutrinos and NSI	04-1159
CNLS	Neufeld, Zoltan *et al*	Noise-sustained Oscillation and Synchronization of Excitable Media with Stirring	04-1163
T-10 T-10	McMahon, B. Fenimore, Paul	Protein Dynamics	04-1164
T-10 T-10 T-10 T-10	Goldstein, Byron Blinov, Mikhail Hlavacek, William Goldstein, Byron	Dynamics Restriction Network Flows During Signal Transduction	04-1165
T-10 T-10	McMahon, B. Labute, Montiago	Protein Structure	04-1166
T-6 CCS-1 X-4	Timmes, Francis Starrfield, Sumner Hix, W Sion, E Sparks, Warren	Surface Hydrogen Burning Modeling of super Soft X-ray Binaries: They are supernova IA progenitors	04-1167
T-4 X-5 X-5	Abdallah, Joseph Fontes, Christopher Zhang, Honglin	An Overview of Relativistic Distorted-Wave Cross Sections	04-1172
T-3 T-3 CCS-2 EES-2	Hunke, Elizabeth Maltrud, Mathew Hecht, Matthew Bleck, Rainer	An Eddy-Admitting Global Ice-Ocean Simulation	04-1182
T-14 T-14 T-14	Strachan, A. Jaramillo, Eugenio Sewell, Thomas	Molecular-Level Studies of Relaxation and Plastic Deformation in Molecular Crystal Under Static and Dynamic Loading	04-1204
T-3	Jones, Philip	Data Requirement for Climate Modeling	04-1207
T-8	Gupta, Rajan *et al*	Crisis Negotiation	04-1253
T-8	Gupta, Rajan	Crisis Negotiation: A Bio-Terrorism Game Scenario for the International Relations Classroom	04-1257
X-5 T-16	Mashnik, Stepan Pronskikh, V. Sierk, Arnold	Analysis of the JINR P (660 MeV) + ^{129}I, ^{237}Np, and ^{241}Am Measurements with Eleven Different Models	04-1258

LANL Group	Author(s)	Title	LAUR No.
T-8 T-8 T-8	Habib, Salman Jacobs, Kurt Shizume, Kosuke	The Quantum Emergence of Chaos	04-1259
T-15 T-15 D-3	Finn, John Nebel, Richard Bathke, Charles	Single Helicity and Quasi-Single Helicity States in Reversed Field Pinches	04-1260
T-3	Jones, Philip	Collaborative Development of the Community Climate System For Terascale Computers	04-1269
T-DO	Milonni, Peter	Spontaneous Emission in a Dielectric	04-1280
T-15 T-3	Chacon, Luis Knoll, Dana	A Fully Implicit 3D MHD Newton-Krylov Algorithm: A Numerical Proof-of-Principle	04-1282
T-3 T-3	Williams, Todd Beyerlein, Irene	Modeling Damage Evolution in Materials: Concepts, Approaches and Issues	04-1301
T-4 T-4 T-4 T-4 T-4 T-4 X-5 X-5	Hakel, Peter Kilcrease, David Abdallah, Joseph Magee, Norman Mazevet, Stephane Sherrill, Manolo Fontes, Christopher Zhang, Honglin	Los Alamos Opacities: Transition from LEDCOP to ATOMIC	04-1311
T-DO	Younger, Stephen	Discrete Agent Simulation of the Inheritance of Norms of Reciprocity	04-1313
T-8	Abazajian, Kevork	Neutrino Dark Matter Clustering: Analytic and numerical predictions	04-1317
T-13 T-13 CNLS	Mackerrow, E. Berman, Gennady Wang, Xidi	Automated Rule Discovery for Detection of Criminal Behavior in Transactional Database	04-1318
T-7 T-7	Staley, Martin Shashkov, Mikhail	Core: A Software Component for Conservative Remapping	04-1319
T-13 T-13	Sharp, David Kosman, David	Dynamical Analysis of Regulatory interactions in the Gap Gene System of drosophila melanogaster	04-1332
T-12 MST-8 MST-8 MST-8 MST-8 NMT-15 T-DO T-12 T-12	Voter, Arthur Valone, Steven Baskes, Michael Stan, Marius Lawson, Andrew Mulford, Roberta Chen, Shao Ping Martin, Richard Uberuaga, Blas	Atomistic Models of Radiation Damage in Plutonium	04-1339
T-12 T-12 T-12	Thomson, Robb Koslowski, Marisol Lesar, Richard	Noise in Deforming Systems	04-1352
T-12 T-12	Asthagiri, Dilipkumar Pratt, Lawrence	The Potential Distribution Theorem in Modeling of Molecular Solutions	04-1354
T-12	Martin, Richard *et al*	Hybrid DFT Studies of Bulk Plutonium Dioxide	04-1355
T-12 T-12 T-12	Koslowski, Marisol Thomson, Robb Lesar, Richard	Dislocation Structures and the Deformation of Materials	04-1356 04-1353
T-12 T-6	Koslowski, Marisol Ariza, Maria Cuitino, Albert Ortiz, Michael	A Multi-Phase Field of Dislocation Dynamics	04-1357

Appendix B–Los Alamos Unlimited Releases (LA-URs)

LANL Group	Author(s)	Title	LAUR No.
T-6 T-6	Fryer, Christopher Warren, Michael	Giant Planetary Collision	04-1364
T-6 T-6 T-16	Heger, Alexander Luu, Thomas Möller, Peter	Detailed Modeling of X-ray Burst Physics	04-1375
T-10 T-10	Tung, C.-S. Macken, Catherine	Homology Model of the Structure of Influenza B Haemagglutinin	04-1376
T-15 T-15	Chacon, Luis Finn, John	Control of Resistive Wall Modes-Nonlinear Saturation and Comparison of Normal and Tangential B Sensing	04-1377
T-14 X-7	Strachan, A. Germann, Timothy	Atomistic Studies of Fast Chemical Processes in Nano-Structured Metastable Composites	04-1378
T-14 T-12	Strachan, A. Holian, Brad	New Computational Technique for Particle-Based Materials Modeling: Coupling Implicit and Explicit Degrees of Freedom	04-1379
T-14 T-14 CCS-3 T-3	Dienes, John Kershner, James Middleditch, John Zuo, Qiuhai	Fracture, Friction, and Initiation	04-1380
T-15 T-15	Glasser, Alan Simakov, Andrei	Computation of Singular MHD Instabilities with DCON	04-1422
T-15 T-15	Nebel, Richard Chacon, Luis	Experimental and Theoretical Studies of Electrostatic Confinement on the INS-e Device	04-1423
T-16 T-16 T-16 T-16 T-16	Lemaire, Sebastien Talou, Patrick Kawano, Toshihiko Madland, David Chadwick, Mark	Correlated Neutron Emission in Fission: Initial Results	04-1424
T-6	Fryer, Christopher	Gravitational Waves from Stellar Collapse: Correlations to explosion asymmetries	04-1425
T-12 T-12 T-12	Asthagiri, D. Pratt, Lawrence Kress, Joel	Hydration of H+(aq)	04-1457
T-DO	Bishop, Alan	Spin and Lattice Effects in the Kondo Lattice Model	04-1484
T-15 P-24	Tang, Xianzhu Hsu, Scott	Astrophysical Magnetic Helicity Injection: Jets, Lobes, and LAPD-U	04-1531
T-15 T-15 CNLS T-15	Lukin, Vyacheslav Glasser, Alan Tang, Xianzhu Simakov, Andrei	Application of the Spectral Element Code (SEL) To Edge Plasma Modeling	04-1532
T-15	Lapenta, Giovanni	Implicit Simulation of Kinetic Plasma Problems	04-1533
T-15 T-15 CNLS	Lukin, Vyacheslav Glasser, Alan Tang, Xianzhu	Development of the Sel Code and Its Application to the Magnetic Reconnection Problem	04-1535
T-4 T-4	Hakel, Peter Mancini, Roberto	Magnetic-Sublevel Atomic Kinetics Modeling for Line Polarization Spectroscopy	04-1536
T-4	Csanak, George	Plasma Polarization Spectroscopy: Past, Present, and Future-A Subjective view	04-1537
LANSCE-12 T-14 T-12 T-14 MST-6 LANSCE-12	Eckert, Juergen Sewell, Thomas Kress, Joel Kober, Edward Lily, Wang Olah, Glenn	Vibrational Analysis of the Inelastic Neutron Scattering Spectrum of Tetramethylam-monium Borohydride by Molecular Dynamics Simulations and Electronic Structure Calcs	04-1562
T-12 T-12	Redondo, Antonio Walker, Robert	Modified Chi-squared Goodness-of-fit test for Comparison of Experimental Data Sets	04-1563
T-10 T-10	Goldstein, Byron Coombs, Daniel	T-Cell Activation: Kinetic Proofreading, Serial Engagement and Cell Adhesion	04-1565

LANL Group	Author(s)	Title	LAUR No.
T-10	Torney, David	Optimal Control for Sensor Networks	04-1566
T-10	Tung, C.-T. *et al*	A Sans Contrast Variation Study to Elucidate Structural Requirements for the Initial Recognition Step Between Myosin Light Chain Kinases and its Activator Protein, Calmodulin	04-1567
T-10	Torney, David	Proliferation Detection Technologies Program Technical Information Exchange	04-1571
T-1	George, Denise	Users Manual Opensesame	04-1585
T-DO	Bishop, Alan	Bonding Constraints, Elasticity and Electronic Heterogeneity in Transition Metal Oxides	04-1586
T-13 CNLS	Ben-Naim, Eli Krapivsky, Paul	Random Geometric Series	04-1587
T-3 T-3	Zhang, Duan Ma, Xia	Constitutive Behavior of Particle-Polymer Binder Composite	04-1588
T-3	Mousseau, Vincent	A Comparison Between an Implicitly Balanced Solution and a Linearized and Operator Split Solution of the Thermal Hydraulic	04-1589
T-14	Dienes, John	Axial Splitting: A test of scram	04-1590
T-12 T-14	Holian, Brad Strachan, A.	Energy Exchange Between Mesoparticles and Their Internal Degrees of Freedom	04-1591
X-4 T-3 T-3 T-3 DX-3	Potocki, Mark Zuo, Qiuhai Maudlin, Paul Addessio, Francis Hull, Lawrence	Study of Fragmentation at LANL	04-1676
T-15 P-24	Tang, Xianzhu Wang, Zhehui	Chandresekhar Equilibria of Compact Toroids with Alfvenic Flows	04-1678
T-4 T-4	Hakel, Peter Mancini, R. *et al*	X-Ray Line Polarization Spectroscopy of Laser-Produced Plasmas	04-1679
T-4	James, Daniel	Quantum Teleportation with Atoms	04-1680
T-4	Cohen, James	Capture of Antiprotons by Some Radioactive Atoms and Ions	04-1681
T-13 CNLS	Chertkov, Michael Chernyak, V Stepanov, Mikhail Vasic, Bane	Error Correction on a Tree: An instanton approach	04-1684
T-13 T-4 T-13 T-DO	Smerzi, Augusto Collins, Lee Berman, Gennady Bishop, Alan Pezze, Luca	Double-slit Interferometry with a Bose-Einstein Condensate	04-1685
T-10	Torney, David	Maximum Algorithms for DSN Swarming	04-1686
T-8 T-8	Abazajian, Kevork Xu, Yongzhong	The Second Data Release of the Sloan Digital Sky Survey	04-1693
T-7 T-DO	Louck, James Carter, John	Magic Squares: Symmetry and Combinatorics	04-1735
T-16	Goldman, Terrance *et al*	Large Mixing from Small: Pseudo-Dirac Neutrinos and the Singular See-Saw	04-1736
T-11 T-11 T-11 T-11	Boulaevskii, Lev Hruska, Marina Shnirman, A. Smith, Darryl Makhlin, Yu	Nondemolition Measurements of a Single Quantum Spin Using Josephson Oscillations	04-1738
T-11 T-11 MST	Balatsky, A. Joglekar, Yogesh Littlewood, Peter	Dipolar Superfluidity in Electron-Hole Bilayer Systems	04-1739
 CNLS	Bouchet, F Barre, Julien	Classification of Phase Transitions and Ensemble Inequivalence in System with Long Range Interactions	04-1741

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LANL Group	Author(s)	Title	LAUR No.
T-11 X-7 T-11	Kadau, Kai Germann, Timothy Lomdahl, Peter	Nanohydrodynamics Simulations: An Atomistic View of the Rayleigh-Taylor Instability	04-1742
T-11 T-11 T-11 T-11	Shnirman, A. Nussinov, Zohar Zhu, Jian-Xin Balatsky, A.	Spin and Current Variations in Josephson Junctions	04-1743
T-11 T-11	Ahn, Keun Hyuk Lookman, Turab	Self-organized Nano and Micrometer Scale Heterogeneities in Perovskite Manganites	04-1744
T-3 T-3	Knoll, Dana Mousseau, Vincent	On Time Integration Methods and Errors for ASCI Applications	04-1749
LANSCE-6 LANSCE-3 T-16 LANSCE-3 P-23 T-16	Johns, Glen Nelson, Ronald Chadwick, Mark Devlin, Matthew Wilburn, Wesley Young, Phillip *et al*	Measurements of ^{238}U(n,'n!) Partial Gamma-Ray Cross Sections with GEANIE	04-1756
T-12 CNLS	Hanson, David Browning, Richard	A Micromechanical Model for Estane to Relate Chemical Degredation to Extreme STS Requirements	04-1790
T-3 T-3 T-3 T-3	Zou, Qisu Zhang, Duan Padial-Collins, N. Vanderheyden, W.	Multiphase Flow Simulation of Ignition of Solid Explosive	04-1791
T-3 T-3 T-3	Harstad, Eric Maudlin, Paul McKirgan, John	Anisotropic Failure Modeling and Simulation with Comparison to Experimental Data	04-1792
T-3	Vanderheyden, W.	Fluid Dynamics Group (T-3) Capabilities and Highlights	04-1793
T-12 T-12 T-12	Tretiak, Sergei Kobko, Nadya Masunov, Artem	Calculations of the Third-Order Nonlinear Response in Push-Pull Chromophores with a Time-Dependent Density Functional Theory	04-1798
T-12	Goupalov, S. *et al*	Exciton Dephasing in Self-Assembled CdSe Quantum Dots	04-1799
T-12	Hanson, David	A Micromechanical Model for Filled Polymers	04-1800
T-12 T-12 T-12 T-12	Batista, Enrique Martin, Richard Hay, Philip Peralta, Juan Scuseria, Gustavo	Density Functional Investigations of the Properties and Thermochemistry of UF6 and UF5 Using Valence-Electron and All-Electron Approach	04-1801
T-12 T-12 T-12	Koslowski, Marisol Lesar, Richard Thomson, Robb	Dislocation Patterning and the Deformation of Materials	04-1802
T-15 T-15	Lapenta, Giovanni Ricci, Paolo Möller	Collisionless Magnetic Reconnection in the Presence of a Guide Field	04-1827
CNLS X-3 T-3 T-12	Burkett, Michael Clancy, Sean Maudlin, Paul Holian, Brad	Coupled Plasticity and Damage Modeling and Applications in a Three-Dimensional Hydrocode	04-1851
T-13	MacKerrow, E.	Agent-Based Simulation of the Demand for Islamist Terrorist Organizations	04-1857
T-13 T-7 T-7 CNLS	Chertkov, Michael Kolokolov, Igor Lebedev, Vladimir Turitsyn, K.	Tumbling of Polymers in Random Flow with Mean Shear	04-1871
X-5 X-5 T-16	Mashnik, Stepan Gudima, K. Prael, Richard Sierk, Arnold	Analysis of the GSI A+P and A+A Spallation, Fission, and Fragmentation Measurements with LANL CEM2K and LQGSM Codes	04-1873

LANL Group	Author(s)	Title	LAUR No.
CCS-4 T-3 T-3	Carrington, David Mousseau, Vincent Knoll, Dana	Preconditioning and Solver Optimization for Radiative Transfer	04-1889
CNLS	Frauenfelder, Hans	The Energy Landscape and Dynamics of Proteins	04-1894
CNLS	Frauenfelder, Hans	Protein Dynamics	04-1895
CNLS	Frauenfelder, Hans	Proteins are Highly Inhomogeneous Systems	04-1896
T-14	Menikoff, Ralph	Constitutive Model for PMMA at High Pressure	04-1899
T-12 ESA-WMM ESA-WMM ESA-WR	Kress, Joel Stephens, Thomas Coons, James Lewis, Matthew	LANL Lifetime Estimation of Non-Nuclear Materials	04-1911
T-12	Kress, Joel	Toward Science-based Lifetime Predictions for the Plastic-Bonded Explosive PBX 9501	04-1927
T-12 T-12 T-12 T-12	Clark, Aurora Sonnenberg, Jason Hay, Philip Martin, Richard	Analyzing the Densities and Kohn-Sham Determinants of Simple Actinide Complexes: What can fuzzy atom, atoms-in-molecules, Mulliken, Lowpin and natural population analysis tell us?	04-1928
T-12 CNLS T-11 T-12 T-DO	Tretiak, Sergei Piryatinski, Andrei Sexena, Avadh Martin, Richard Bishop, Alan	Formation and Dynamics of Photoexcited Breathers in Conjugated Polymers	04-1929
T-14 T-12	Strachan, A. Holian, Brad	Energy exchange Between Mesoparticles and Their Internal Degrees of Freedom (Supplemental)	04-1973
T-14 T-14	Bardenhagen, Scott Brydon, Andrew Guilkey, James	Insight into the Physics of Foam Densification via Numerical Simulation	04-1974
T-12	Kendrick, Brian Derrickson, Sean	Quantum hydrodynamics: application to N-dimensional reactive scattering	04-1975
T-12 T-12 T-12	Koslowski, Marisol Lesar, Richard Thomson, Robb	Avalanches and Scaling in Plastic Deformation	04-1982, 04-1803
T-12 T-12	Challacombe, W. Nemeth, Karoly	Internal Coordinate Geometry Optimization and Linear Scaling AB Initio Theory For Quantum Biochemistry	04-1983 04-0186
T-15 T-15 T-3 X-1	Lapenta, Giovanni Ricci, Paolo Brackbill, Jeremiah Daughton, William	Influence of the Lower Hybrid Drift Instability on the Onset of Magnetic Reconnection	04-1987
CNLS	Frauenfelder, Hans	Fluctuations Control Biomolecular Processes	04-1988
T-12 T-12 T-12	Clark, Aurora Hay, Philip Martin, Richard *et al*	Molecular Spectroscopy of Actinide-Ketimido Complexes	04-2071
T-10 T-10 T-10 T-10	Kuiken, Carla Yusim, Karina Boykin, Laura Richardson, R.	The Los Alamos Hepatitis C Sequence Database	04-2085
T-10 T-10 T-10 T-10 T-10	Korber, Bette Foley, Brian Yusim, Karina Leitner, Thomas Gaschen, Brian	Molecular Mechanisms of HIV Pathogenesis (X7)	04-2086
T-10	Korber, Bette *et al*	Neutralization Antibody Signature Patterns in HIV Sequences	04-2087
T-16	Gibson, Benjamin	Inelastic Electron Scattering to the First Zero-Plus Excited State of He4	04-2089

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LANL Group	Author(s)	Title	LAUR No.
T-6	Heger, Alexander *et al*	A Vibrational Instability in SN IA Progenitors	04-2092
T-6	Heger, Alexander *et al*	Nucleosynthesis and Evolution of Pop III Starts	04-2093
T-6	Heger, Alexander Woosley, Stan	Nucleosynthesis in Stars and Galactochemical Evolution	04-2094
T-12 X-7 T-11 CNLS	Holian, Brad Germann, Timothy Lomdahl, Peter Ravelo, Ramon	Shock-Induced Plasticity in Single Crystal and Nanocrystalline Metals	04-2095
T-12 X-7 CNLS	Holian, Brad Germann, Timothy Ravelo, Ramon	Plastic Deformation Mechanisms in Shocked Single Crystal Metals	04-2096
T-3	Eggert, Kenneth *et al*	A Continental Scale River Modeling Framework Designed Around Topographic Modeling Units with Body Hydrologic and Hydraulic Realism	04-2137
T-16 X-5	Pronskikh, V. *et al* Sierk, Arnold Prael, Richard	Study of Proton Induced Reactions in a Radioactive ^{129}I Target at EP=660 MeV	04-2139
T-4 T-4 X-5 T-4 T-4 T-4 X-5 T-4 T-12 T-1 T-4 X-5	Magee, Norman Abdallah, Joseph Fontes, Christopher Hakel, Peter Mazevet, Stephane Sherrill, Manolo Zhang, Honglin Collins, Lee Kress, Joel Crockett, Scott Kilcrease, David Fontes, Christopher	ATOMIC Benchmark Opacity Calculations, Theoretical Division Special Features 2004	04-2143
T-1	Niklasson, Anders	Iterative Refinement Technique for the Approximate Factorization of the Inverse	04-2159
T-3	Moses, Ronald	Book Review of "The high-latitude ionosphere and it's effects on radio propagation: Cambridge atmospheric and Space Science Series"	04-2196
T-3	Mousseau, Vincent	A Hybrid Solution Method for the Two-Phase Fluid Flow Equations	04-2197
T-12 T-12	Koslowski, Marisol Lesar, Richard *et al*	Dislocation Patterning and Avalanches in Plastic Deformation	04-2202
T-DO	Dalvit, Diego	Dynamical Casimir Effect via Time-Dependent Conductivity in the MIR Experiment	04-2204
T-16	Gibson, Benjamin	Four-Body Calculation of the First 0+ Excited State of 4He	04-2205
T-12 T-12	Masunov, Artem Tretiak, Sergei	DFT Study of the Effects of Solvent Environment on Photophysical Properties and Electronic Structure of Paracyclophane Chromophores	04-2213
T-16	Friar, James *et al*	Charge-Symmetry Breaking and Class IV Nuclear Forces	04-2214
T-4 X-7 X-7	Mazevet, Stephane Kowalski, Piotr Saumon, Didier	Refraction and Opacities in Very Cool Helium-Rich White Dwarf Atmospheres	04-2221
T-3 CNLS MST-8 MST-8 CNLS	Maudlin, Paul Bingert, John Henrie, Benjamin Cady, Carl Gray, George	Local and Polycrystalline Textures in Body-Centered Cubic Metals: Their Evolution and Effect on Mechanical Response	04-2232

LANL Group	Author(s)	Title	LAUR No.
T-4 T-4	Csanak, George Kilcrease, David *et al*	Alignment Creation by Elastic Electron Scattering	04-2235
T-6 X-1	Colgate, Stirling Li, Hui	Cosmic Ray Acceleration by E Parallel Reconnection of Force-Free Fields	04-2257
T-6	Luu, Thomas *et al*	Effective Interactions for the Three-Body Problem	04-2258
T-6	Herwig, Falk *et al*	Nuclear Reaction Rules and the Carbon Star Mystery	04-2259
T-8	Abazajian, Kevork *et al*	The Viability of a Cosmological Lepton Asymmetry in Reconciling Sterinle Neutrinos with Primordial Nucleosynthesis	04-2260
T-13	Berman, Gennady *et al*	Wave Function Collapses in a Single Spin Magnetic Resonance Force Microscopy	04-2302
T-13 CNLS	Ben-Naim, Eli Krapivsky, Paul	Unicyclic Components in Random Graphs	04-2303
T-1	Clements, Brad	Polymer Behavior Under Dynamics Loading	04-2306
X-2 T-16 T-16	Becker, Stephen Möller, Peter Sierk, Arnold	Stability and Decay at the End of the r-Process	04-2324
CNLS MST-10	Zhang, Jinsuo Li, Ning Rusanov, A.E.	Corrosion Behaviors of US Steels in Flowing Lead-Bismuth Eutectic (LBE)	04-2325
T-7	Peleg, Avner	Lognormal Distribution of Pulse Amplitudes Due to Raman Ross Talk in WDM Solution Transmission	04-2326
T-7	Dendy, Joel	Alternative RAP	04-2327
T-12	Lesar, Richard	A Density-Functional Theory for Dislocation Structures	04-2336
T-12 T-12	Lesar, Richard Redondo, Antonio	An Analytical Model of Bone Remodeling	04-2337
T-12 T-12	Lesar, Richard Rickman, Jeffrey	Mesoscale Modeling of Dislocation Energetics and Dynamics	04-2338
T-12 T-12	Batista, Enrique Martin, Richard	Natural Transition Orbitals	04-2339
T-12	Voter, Arthur	Atomistic Simulation Methods	04-2340
T-12	Masunov, Artem	Density Functional Theory Studies of the Ground and Excited States	04-2341
T-12 T-12	Walker, Robert Redondo, Antonio	Goodness of Fit Tests for Comparison of Experimental Data Sets	04-2342
ESA-WR ESA-WR ESA-WR T-3	Lewis, Matthew Maciucescu, Luca Rangaswamy, P. Schraad, Mark	Evaluation of the 'PDF Constitutive Model'	04-2357
MST-8 T-3 DX-1	Mason, Thomas Maudlin, Paul Thomas, Keith	Detonation Wave Geometry and Mixed Mode Damage	04-2366
T-3 CNLS CNLS	Maudlin, Paul Bingert, John Gray, George *et al*	Tentalum EFP Test Series: Experiments and Analysis	04-2367
T-3 T-3 T-1 T-14 T-3 T-1 T-3	Maudlin, Paul Addessio, Francis Clements, Brad Dienes, John Harstad, Eric Mas, Eric Zuo, Qiuhai *et al*	Joint DoD/DOE Munitions Technology Development Program	04-2368
CNLS	Neufeld, Zoltan *et al*	Homogenization Induced by Chaotic Mixing and Diffusion in an Oscillatory Chemical Reaction	04-2370
T-7	Hyman, James	Mathematical Modeling and Analysis (T-7) Research Highlights, Spring 2004	04-2371

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LANL Group	Author(s)	Title	LAUR No.
T-7	Jiang, Yi *et al*	Role of Streams in Aggregate Formation in Myxobacteria	04-2372
T-3 T-1 T-3 DX-2	Addessio, Francis Greeff, Carl Harstad, Eric Hayes, Dennis	Modeling Zirconium Explosively Formed Projectiles	04-2373 04-2374
T-4 T-4 T-4	Mazevet, Stephane Colgan, James Collins, Lee	Simulations of Ultracold Plasmas and Cold Rydberg Gases	04-2382
T-4	Colgan, James *et al*	Multiple Photoionization of Atoms and Ions using the Time-dependent Close-coupling Method	04-2383
T-4	Cohen, James	Capture of Negative Exotic Particles by Atoms, Ions, and Molecules	04-2384
T-DO	Milonni, Peter	Coherence and Noise in the Propagation of Slow Light	04-2415
T-13	Smerzi, Augusto *et al*	Propagation of Sound in a Bose Einstein Condensate in an Optical Lattice	04-2416
T-6	Heger, Alexander *et al*	The Nucleosynthetic Yields of Core Collapse Supernovae	04-2419
T-6	Seljak, Uros Warren, Michael	Large Scale Bias and Stochasticity of Halos and Dark Matter	04-2420
T-16	Friar, James	The Nuclear Physics of Atomic Hyperfine Structure	04-2421
T-4	James, Daniel	Measurement-Induced Nonlinearities in Quantum Information	04-2422
T-3 T-3	Schraad, Mark Harlow, Francis	A Stochastic Constitutive Law for Disordered Cellular Materials	04-2434
T-3	Johnson, Norman	LANL Chemical & Biological Threat Reduction Program	04-2438
CNLS X-4 DX-3	Ramaprabhu, Praveen Dimonte, Guy Andrews, Malcolm	A Numerical Study of the Influence of Initial Perturbations on the Turbulent Rayleigh-Taylor Instability	04-2457
CNLS CNLS CNLS	Neufeld, Zoltan Karolyi, Gyorgy Scheuring, Istvan	Rock-Scissors-Paper Game in a Chaotic Flow: The effect of dispersion on the cyclic competition of microorganisms	04-2458
T-11 CNLS	Martin, Ivar Mozyrsky, Dima	Change Dynamics and Kondo Effect in Single Electron Traps in Field Effect Transistors	04-2461
T-3	Holland, Marika Bitz, Cecilia Hunke, Elizabeth	Mechanisms Forcing an Antarctic Dipole in Simulated Sea Ice and Surface Ocean Conditions	04-2472
T-3 T-3 T-3 X-4	Zuo, Qiuhai Maudlin, Paul Addessio, Francis Potocki, Mark	Embedded Element for Strain Localization	04-2473
T-16	Gibson, Benjamin *et al*	Anomalous Magnetic Moment Contribution to Nucleon-Nucleon Bremsstrahlung in the Soft-Photon Approximation	04-2483
T-12	Henkelman, G. *et al*	A Fast and Robust Algorithm for Bader Decomposition of Charge Density	04-2484
T-15	Finn, John	Control of Resistive Wall Modes in a Cylindrical Tokamak With Radial and Poloidal Magnetic Field Sensors	04-2498
T-15	Nebel, R. *et al*	Electromental and Theoretical Studies of Electrostatic Confinement	04-2499
T-15	Nebel, Ri. *et al*	Theoretical and Experimental Studies of Kinetic Equilibrium and Stability in the Virtual Cathode of the Intense Neutron Source (INS-E) Device	04-2500
T-12 X-7 X-7 CNLS	Holian, Brad Hammerberg, J. Germann, Timothy Ravelo, Ramon	Nanoscale Structure and High Velocity Slidat at Cu/Ag Interfaces	04-2507
T-DO T-DO	Blume-Kohout, R. Zurek, Wojciech	Redundancy of Information Storage in Multi-Qubit Universes	04-2519

LANL Group	Author(s)	Title	LAUR No.
T-6	Denissenkov, Pavel Herwig, Falk	Enhanced Extra Mixing in Low-Mass Red Giants: Lithium Production and Thermal Stability	04-2520
T-6 X-1 EES-IGPP T-6	Colgate, Stirling Li, Hui Kronberg, Philipp Currier, Nathaniel	The Magnetic Universe	04-2521
T-7 CNLS	Austin, Travis Manteuffel, T.	A Least-Squares Finite Element Method for the Linear Boltzmann Equation with Anisotropic Scattering	04-2523
T-11 T-11 T-11 CNLS T-11	Nussinov, Zohar Zhu, Jian-Xin Balatsky, A. Crommie, Mike Manassen, Yishay	Single Spin Detection and Noise Spectroscopy	04-2608
T-DO	Milonni, Peter	Fast Light and Signal Velocity	04-2609
T-3	Johnson, Norman	Los Alamos Homeland Security Programs and Highlights	04-2615
T-8	Nieto, Michael	Controlled Antihydrogen Propulsion for NASA's Future in Very Deep Space	04-2625
T-6	Heger, Alexander	Coming Out of the Cosmic Dark Ages-The First Stars in the Universe	04-2626
T-DO	Dalvit, Diego	Resonant Photon Creation in a Cavity with Time Dependent Conductivity	04-2661
T-11 T-11 CNLS T-DO T-12	Rasmussen, Kim Kalosakas, George Voulgarakis, Nikos Bishop, Alan Choi, Chu	Thermally Induced Coherent Vibrations in DNA	04-2662
T-DO	Bishop, Alan	The Elusive Landau Instability: A case example	04-2662
T-16	Hiyama, Emiko Gibson, Benjamin Kamimura, M.	Four-Body Calculation of the First Excited State of the ^{4}He State Using a Realistic NN Interactions: ^{4}He(e,e')^{4}He(0^+2) and the Monopole Sum Rule	04-2664
T-6 T-6 T-3	Weisheit, Jon Scannapieco, Evan Harlow, Francis	Triggering the Formation of Halo Globular Clusters with Galaxy Outflows	04-2665
T-3	Schraad, Mark	Fluid Dynamics Group (T-3)	04-2677
T-3 T-3 T-3	Vanderheyden, William Zhang, Duan Zou, Qisu	Modeling Friction Initiation of HE	04-2683
T-15 T-6	Tang, Xianzhu Colgate, Stirling *et al*	MHD Jet and Outflow Driven by an Accretion Disk	04-2704
T-15	Lapenta, Giovanni	Kinetic Simulation of Dusty Plasmas	04-2705
T-6	Warren, Michael	Economics and Sociology	04-2707
T-14	Bardenhagen, Scott	3D Simulations of the Dynamic Compaction of Granular Material and PBXs	04-2733
T-14	Strachan, A.	LANL project in: De Novo Hierarchical Design for Predicting Real Optimized Materials	04-2734
T-12 T-12 T-12	Chao, Sheng Der Kress, Joel Redondo, Antonio	A Course- Grained Model For Macromolecule Simulations	04-2764
T-6 CCS-4 CCS-4 CCS-4	Fryer, Christopher Hungerford, Aimee Urbatsch, Todd Evans, Thomas	Unified 1-D Simulations of Gamma-Ray Line Emission from Type Ia Supernovae	04-2765
T-16	Buervenich, T.	The Two-Proton Shell Gap in Sn Isotopes	04-2767
T-16	Reddy, Sanjay	Equation of State and Neutrino Opacity of Dense Stellar Matter	04-2786

Appendix B–Los Alamos Unlimited Releases (LA-URs)

LANL Group	Author(s)	Title	LAUR No.
T-1	Kuprat, Andrew	Moving Mesh Methods and Applications	04-2788
T-13	Rose, Harvey	Langmuir Wave Self-Focusing Versus Decay Instability	04-2823
T-10	Perelson, Alan	The Population Dynamics of Cytotoxic T Lymphocytes	04-2832
CNLS T-12	Reichhardt, Charles Reichhardt, C.	Noise at the Wigner Glass Transition	04-2833
T-16	Page, Philip	R-Matrix Theory and Nuclear Applications	04-2834
T-6 LANSCE-3	Heger, Alexander Reifarth, Rene	Stellar ^{62}Ni(n,g)^{63}Ni Reaction	04-2892
T-3 T-3 T-3 T-3	Vanderheyden, W. Zhang, Duan Padial-Collins, N. Zou, Qisu	Modeling for IED Fragment Capture	04-2904
T-3 T-3	Kashiwa, Bryan Vanderheyden, W.	Toward a General Theory for Multiphase Turbulence	04-2905
T-16	Burrows, Adam Reddy, Sanjay Thompson, Todd	Neutrino Opacities in Nuclear Matter	04-2954
T-3 T-3	Vanderheyden, W. Zhang, Duan	Modeling Friction Initiation of HE	04-3001
T-7	Peleg, Avner	Emergence of Lognormal Distribution of Pulse Amplitudes Due to Raman Ross Talk in WDM Solution Transmission	04-3014
T-10	Perelson, Alan *et al*	Dynamics Intermittent Viremia During Haart In Patients Who Initiate Therapy During Chronic Versus Acute And Early HIV-1 Infection	04-3015
T-10 T-10 T-10 T-10	Blinov, Mikhail Faeder, James Goldstein, Byron Hlavacek, William	BioNetGen: Modeling Biochemical Systems, Accounting For All Possible Chemical States Implied Specific Interactions and Activities	04-3016
T-15 T-3	Lapenta, Giovanni Knoll, Dana	Effect on a Converging Flow at the Streamer Cusp on the Genesis of the Slow Solar Wind	04-3017
T-16	Goldman, Terrance	Narrow Spin-3 Isospin-0 Dibaryon	04-3045
X-5 T-16	Mokhov, N. *et al* Mashnik, Stepan Sierk, Arnold	Recent Enhancements to the MARS15 Code	04-3047
T-16	MacFarlane, R.	Recent Fast Data Testing Results from Los Alamos	04-3052 04-3053
T-3	Vanderheyden, W.	Novel Algorithms for Agent Defeat, Non-Ideal Airblast Simulation and HANE	04-3080
T-1	Schlei, Bernd	A New Computational Framework for 3D Shape-Enclosing Contours	04-3115
T-3 DX-3	Kashiwa, Bryan Hull, Lawrence	Multifield Closure Modeling for Metal-Loaded High Explosives	04-3130
T-6 X-DO	Cox, Arthur Guzik, Joyce	Theoretical Prediction of an Observed Solar G-Mode	04-3138
T-16	Carlson, Joseph *et al*	Quantum Monte Carlo Studies of Superfluid Fermi Gases	04-3139
T-16	Joydip, Kundu Reddy, Sanjay	Neutrino Scattering Off Pair-Breaking and Collective Excitations in Superfluid Neutron Matter and in Color-Flavor Locked Quark Matter	04-3171
T-6 LANSCE-3	Heger, Alexander Refarth, Rene	Accelerator Mass Spectroscopy of Ni^{59} re-visited and Cross Section of the Ni^{58}(n,g)Ni^{59} Reaction at Stellar Temperatures	04-3172
T-7	Peleg, Avner	Emergence of Lognormal Distribution for Pulse Amplitudes Due to Raman Cross Talk in Multi-Channel Solution Transmission	04-3173
T-10	Ribeiro, Ruy	Modeling a Thymectomy Experiment to Quantify Production of New T-Cells	04-3204
T-10	Ribeiro, Ruy	Measuring the Basic Reproductive Ratio (R0) from In Vivo Data	04-3205

LANL Group	Author(s)	Title	LAUR No.
T-10 T-10	Sanbonmatsu, K. Tung, C.-S.	Multimillion Atom Simulations of the Ribosome: A new state-of-the-art in computational biology	04-3206
T-DO	Milonni, Peter	Slow Light	04-3218
T-8 T-6 T-16 P-21 NIS-7	Nieto, Michael Hayes, Anna Wilson, William Teeter, Corinne Stanbro, William	Detection of Antineutrinos for Non-Proliferation	04-3224
T-8	Shirman, Yuri *et al*	Perils of Ignoring the Hidden Sector	04-3225
T-12 CNLS T-11 T-12 T-DO	Tretiak, Sergei Piryatinski, Andrei Saxena, Avadh Martin, Richard Bishop, Alan	Photoexcited Breathers in Conducting Polymers: Do they exist?	04-3253
T-4	Collins, Lee	Atom-Trap Superfluidity	04-3327
T-8	Bhattacharya, T.	Elementary Particle Theory, General Relativity and String Theory	04-3330
T-3	Knoll, Dana	Innovative Approaches for Nonlinearly Consistent, Multiple Time Scale Computational Physics	04-3333
T-12	Pratt, Lawrence	Role of Water in Self-Assembled Structural Stability	04-3337
T-6	Mihaila, Bogdan	Continuum Coupled-Cluster Expansion Approach To Nuclear Structure	04-3354
T-6 T-6 CCS-4	Fryer, Christopher Timmes, Francis Hungerford, Aimee	Changing the r-Process paradigm	04-3355
T-6	Mihaila, Bogdan	The Origin of Elements, Like as we know it, and the Future of Computational Nuclear Physics	04-3356
LANSCE-3 T-16 X-5	Kelley, K. Devlin, Matthew Pitcher, Eric Mashnik, Stepan Hertel, N.	Gadolinium-148 Production Cross Sections Measurements for 660- and 800-MeV Protons	04-3385
T-DO	Berman, Paul Milonni, Peter	Modification of the Optical Bloch Equations in Weak Fields Resulting from the Frequency Dependence of Spontaneous Emission	04-3411
T-16	Goldman, Terrance *et al*	Tensor Interaction Effect in Dibaryon	04-3412
T-15 T-15	Daligault, Jerome Murillo, Michael	Investigation of Ion Dynamics in Liquid Metals Through the Electron-Dynamics Structure Factor	04-3413
T-10 T-10 T-10	Gnanakaran, S. Garcia, Angel Goldstein, Byron	Folding Thermodynamics of a Helical Peptide in Explicit Water Using Opls Force Field	04-3414
T-10 T-10 T-10	Goldstein, Byron Faeder, James Hlavacek, William	Mathematical and Computational Models of Immune Receptor Signaling	04-3415
T-7	Garimella, Rao	MSTK- A flexible infrastructure library for developing mesh based applications	04-3422
T-11	Albers, Robert	Pu: A Condensed Matter Point of View	04-3423
T-3	Lipscomb, William	Sea Ice Progress Report	04-3432
T-8 T-8	Chamblin, Andrew Cooper, Frederick Nayak, Gouranga	Susy Production from TEV Scale Blackhole at LHC	04-3475
T-12	Kress, Joel *et al*	Aging and Free-Radical Oxidation of PBX 9501	04-3503
T-16	Kawano, Toshihiko	Subgroup 20: Covariance Matrix Evaluation and Process in the Resolved/Unresolved Resonance Regions Status Report 2004	04-3510
T-6	Heger, Alexander *et al*	Breaking Gravity Waves: A Mechanism for Nova Enrichment	04-3511

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LANL Group	Author(s)	Title	LAUR No.
T-6 LANSCE-3	Nasser, H Heger, Alexander Reifarth, Rene	The Stellar (Neutron, Gamma) Cross Section of Nickel-62	04-3512
T-6	Heger, Alexander *et al*	Pulsational Analysis of the Cores of Massive Stars and Its Relevance to Pulsar Kicks	04-3513
T-4 T-4	Hu, Suxing Collins, Lee	Phase Control of the Inverse Anti Process with Few-Cycle Pulses	04-3527
T-12 T-12	Martin, Richard Hay, Philip *et al*	Synthesis and Reactivity of the Rhenium Methylidene Complexes CP*(PME3)2ReCH2(R), R=H, CH3	04-3528
T-10	Labute, Montiago *et al*	An Anderson Impurity Model for Efficient Calculation of Adiabatic Potential Energy Surfaces for Transition Metal Complexes	04-3532
T-10 T-10 NIS-2 T-10	Korber, Bette Szinger, James Theiler, James Goulder, PJR Brander, Christian *et al*	Imprinting of CTL Escape Mutations on the Viral Population in Durban, South Africa	04-3533
T-7 T-7	Tartakovsky, D. Wohlberg, Brendt	Subsurface Imaging with Statistical Learning Theory	04-3535
T-6	Herwig, Falk	Evolution and Yields of Extremely Metal Poor Intermediate Mass Stars	04-3540
T-12 T-12	Pratt, Lawrence Asthagiri, D.	Quasi-chemical Theory and the Hydration of Ions in Aqueous Soulation	04-3563
T-11	Smith, Darryl	Different Regimes of Forster Energy Transfer Between an Epitaxial Quantum Well and a Proximal Monolayer of Semiconductor Nanocrystals	04-3564
T-3	Williams, Todd	A Stochastic Framework for the Micromechanical Analysis of Composites	04-3580
T-3	Vanderheyden, W.	T-3 Overview: Multiphase Flow	04-3581
T-16 T-16	Talou, Patrick Chadwick, Mark Dietrich, Frank Herman, M.	Subgroup A: Nuclear Model Codes Report to the Sixteenth Meeting of the WPEC	04-3595
T-16 T-16	Reddy, Sanjay Rupak, Gautam	Phase Structure of 2-Flavor Quark Matter: Heterogeneous Superconductors	04-3596
T-11 NIS-1	Sreekala, S Ahluwalia, Rajeev Carlone, Geeno	A Simple Phenomenological Model for Some Unusual Properties of Martensitic	04-3597
T-11	Smith, Darryl	Electric Properties of Inorganic and Organic Semiconductors: Application to National Security Needs	04-3598
T-3	Mousseau, Vincent	Transitioning from Interpretive to Predictive in Thermal Hydraulic Codes	04-3613
T-3 T-3 T-3 T-3	Zou, Qisu Zhang, Duan Padial-Collins, N. Vanderheyden, W.	Multiphase Flow Simulation of Ignition of Solid Explosive	04-3614
T-3	Zhang, Duan	Enduring Contacts and Dense Granular Flows	04-3615
T-12 T-14 T-12	Gan, Chee Tymczak, Christopher Challacombe, Matt	Linear Scaling Computation of the Fock Matrix, IX, Parallel Computation of the Coulomb	04-3626
T-4	Colgan, James	Symmetrized Complex Amplitudes for HE Double Photoinization from the Time-Dependent Close Coupling and Exterior Complex Scaling Methods	04-3646
T-4	Ponomarenko, S. Wolf, Emil Roychowdhury, H.	Physical Significance of Complete Spatial Coherence of Optical Fields	04-3647
T-15	Lapenta, Giovanni *et al*	Charging of Meteoroids: Effect of thermionic emission	04-3653

LANL Group	Author(s)	Title	LAUR No.
T-12	Hanson, David	Development of a Strength Model for Silica Filled Polydimethylsiloxane: A Combined Theory and Experimental Approach	04-3667
T-12	Redondo, Antonio	Multiscale Material Interfaces	04-3691
T-7 T-7 T-7	Vachal, Pavel Shashkov, Mikhail Garimella, Rao	Rezoning of Triangular Ale Meshes by Node Reconnection	04-3728
T-12	Babikov, Dmitri Zhang, Peng Morokuma, K	Cyclic-N3: I. An Accurate Potential Energy Surface for the Ground Doublet Electronic State up to the Energy of the 2A2/2B1	04-3731
T-12	Babikov, Dmitri	Accuracy of Gates in a Quantum Computer Based on Vibrational Eigenstates	04-3732
T-DO	Zurek, Wojciech	Probabilities from Envariance	04-3733
T-16	Möller, Peter *et al*	Global Calculations of Ground-State Axial Shape-Asymmetry of Nuclei	04-3770
T-12	Pack, Russell	Theory of Isotope Effects in Recombination Reactions	04-3843
T-14	Strachan, A. *et al*	Multiscale Modeling of Nano-Structured Complexity in Ferroelectric Polymers	04-3847
T-14 T-14	Strachan, A. Kober, Edward *et al*	Thermal Decomposition of RDX from Reactive Molecular Dynamics	04-3848
T-16	Möller, Peter	Global Nuclear Structure Calculations for Astrophysics, Recent Developments	04-3849
T-13 T-13 CNLS	Ben-Naim, Eli Toroczkai, Zoltan Frauenfelder, Hans	Preface	04-3860
T-13	Beletskii, N Berman, Gennady Borysenko, S	Controlling the Spin Polarization of the Electron Current in a Semimagnetic Resonant-Tunneling Diode	04-3862
T-13 T-DO CNLS CNLS	Berman, Gennady Bishop, Alan Kamenev, Dmitry Trombettoni, A.	Quantum Logic Operations and Creation of Entanglement in a Scalable Superconducting Quantum Computer with Long-Range Interactions between qubits	04-3863
T-13	Hastings, Matthew	Locality in quantum and markov dynamics on lattices and networks	04-3865
T-3 CNLS	Torres, David O'Rourke, Peter	KIVA-4 Development	04-3866
T-3 T-11 X-7 T-11 T-11 T-10 D-4	Johnson, Norman Blagoev, Krastan Germann, Timothy Kadau, Kai Lomdahl, Peter Macken, Catherine McPherson, T.	FACT SHEET: Large-Scale Epidemiological Simulation- Building New Opportunities on Renowned Science Foundations	04-3867
T-1	Nebel, Richard *et al*	Theoretical and Experimental Studies of Kinetic Equilibrium and Stability in the Virtual Cathode of the Intense Neutron Source (INS-E) Device	04-3868
T-7 T-7	Loubere, Raphael Shashkov, Mikhail	2D Arbitrary-Langrangian-Eulerian (ALE) Code on Polygonal Grids for Shock Wave Simulation	04-3891
T-14	Kober, Edward	Time Series Functional Data Analysis	04-3911
MST-8 T-3 CNLS MST-8	Zubelewicz, A. Maudlin, Paul Gray, George Zurek, Anna	Dynamic Defect Structure	04-3921
T-14	Menikoff, Ralph	Analysis of Wave Profiles for Single Crystal HMX	04-3928
T-1 T-1	Lorenzi-Venneri, G. Wallace, Duane	A New Theory of the Dynamic Response of Monatomic Liquids	04-3937
T-1 T-1 T-1	Chisolm, Eric Wallace, Duane Crockett, Scott	Extending the CCW EOS II: Extending the Nuclear Contribution to High Temperatures	04-3948

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LANL Group	Author(s)	Title	LAUR No.
T-10 CNLS T-10	McMahon, Benjamin Fenimore, Paul Bruno, William	Structural Variability of Protein Kinases	04-3974
CNLS T-3 MST-8 MST-8	Gray, George Maudlin, Paul Cerreta, Ellen Chen, Shuh-Rong	Influence of Deformation Mechanisms on the Mechanical Behavior of Hexagonal Metals: Experiments, Constitutive Behavior, and Validation	04-3978
T-16	Gibson, Benjamin	Highlights of the KEK Strangeness Program Since 2000	04-4002
T-10 T-10 T-10 T-10	Blinov, Mikhail Faeder, James Goldstein, Byron Hlavacek, William	A Network Model of Early Events in EGFR Signaling that Predicts the Dynamics of Hundreds of Protein Complexes and Phosphforms	04-4012
T-10 T-10 T-10 T-10	Blinov, Mikhail Faeder, James Goldstein, Byron Hlavacek, William	Bionetgen: A Model Tool That Handles Combinatorial Complexity	04-4013
T-14	Bardenhagen, Scott	Simulation of Large Granular Shear	04-4053
T-3 T-3	Hunke, Elizabeth Maltrud, Mathew Holland, Marika	AOMIP (Arctic Ocean Intercomparison Project): 2 Runs, A lesson, and 2 questions	04-4054
T-3	Hunke, Elizabeth *et al*	On the Maintenance of the Sea-ice Edge	04-4055
T-7	Austin, Travis	Calculating the Net Flux in Truchas using Support Operations	04-4060
T-16 LANSCE-12 LANSCE-12	Pitcher, Eric Muhrer, Guenter Russell, Gary	Lujan Center Cold Source Upgrade Studies	04-4066
T-4 T-4	Hakel, Peter Kilcrease, David	CHEMEOS: A New Chemical-Picture-Based Model for Plasma Equation-of-State Calculations	04-4072
T-10 T-12 T-12 T-10	Labute, Montiago Martin, Richard Hay, Philip McMahon, B.	Broken Symmetry Singlet and Triplet Electronic States of an Oxyheme Model and their Relation to Distinct Conformational Substates of Mb02	04-4097
T-7 CNLS	Wohlberg, Brendt Brislawn, Chris	Lifted Linear Phase Filter Banks and the Polyphase-with-advance Representation	04-4098
T-16	Herczeg, Peter	Beta Decay Beyond the Standard Model	04-4110
T-14	Bardenhagen, Scott	Progress Toward Understanding Bicrystal Stress Wave Inhomogeneity	04-4113
CCS-3 CCS-3 CCS-3 T-3	Kerbyson, Darren Hoisie, Adolfy Lang, Michael Jones, Philip	A Performance Model of POP	04-4119
T-10	Paschek, Dietmar Garcia, Angel	Reversible Temperature and Pressure Denaturation of a Protein Fragment: A replica exchange molecular dynamics simulation study	04-4120
T-7 T-7 T-7	Berndt, Markus Austin, Travis Moulton, John	A Memory Efficient Parallel Tridiagonal Solver	04-4129
T-12	Babikov, Dmitri *et al*	Temperature-Dependent Terahertz Spectroscopy of Single Crystals of Energetic Materials	04-4143
T-3 T-3 T-3	Zhang, Duan Zou, Qisu Vanderheyden, W.	Particle-in-Cell Method in Multiphase Flow Simulations	04-4177
T-10 T-10	Ribeiro, Ruy Perelson, Alan *et al*	Early Hepatitis C Virus (HCV) Dynamics in African American and Caucasian Patients Treated with Peginterferon-Alfa 2A and Ribavirin	04-4213

LANL Group	Author(s)	Title	LAUR No.
T-10 T-10 T-10	Ribeiro, Ruy Perelson, Alan Powers, K. *et al*	Randomized, Double-Blind Study Comparing Adeforir Diivoxil (ADV) Plus Emtricitabine (ETC) Combination Therapy Versus ADV Alone in HBeAg (+) Chronic Hepatitis B: Efficacy and mechanisms of treatment response	04-4214
T-10 T-10	Ribeiro, Ruy Perelson, Alan *et al*	Hepatitis B Viral Kinetics Under Different Antiviral Treatment Regimens in HBeAg-Negative Patients with Chronic Hepatitis B. Paramount Role of Baseline HBV DNA Levels	04-4215
X-4 T-3 X-7	Potocki, Mark Canfield, Thomas Zocher, Marvin	Results from the TEPLA Material Model in the Shavano Project	04-4219
T-10 T-10	Nymeyer, Hugh Garcia, Angel	Using Replica Exchange Dynamics with the Nose-Hoover Thermostat	04-4220
T-12 T-12	Voter, Arthur Uberuaga, Blas *et al*	Exploring Long-Time Response to Radiation Damage in MgO	04-4226
T-13	Hastings, Matthew	An Expansion for Small-world Networks	04-4240
T-7	Peleg, Avner *et al*	Far-From-Equilibrium Ostwald Ripening in Electrostatiscally Driven Granular Powders	04-4242
T-14	Kadau, Kai	Simulation of Structural Transformations in Nanoparticles	04-4284
T-16 T-16 T-16 T-16 X-5	Talou, Patrick Chadwick, Mark Kawano, Toshihiko Young, Phillip Mashnik, Stepan	LANL Contribution to the IAEA RIPL-3 Coordinated Research Program	04-4285
T-16	Schiavilla, Rocco Paris, Mark Carlson, Joseph	Parity Violation in Few-(Mostly Two) Nucleon Systems	04-4311
T-6	Heger, Alexander *et al*	Germanium in Damped Lyman-alpha Systems and Copper Connection	04-4313
T-6	Heger, Alexander *et al*	The Weak SR(P)- Process in Massive Stars	04-4314
T-12 T-12	Peery, Travis Pratt, Lawrence	AB Initio Molecular Dynamics Study of Salt Clathrate Hydrates	04-4318
T-12	Davidson, Ernest Clark, Aurora	Spin Polarization and Annihilation For Radicals and Diradicals	04-4319
T-12 T-6	Koslowski, Marisol Cuitino, A. *et al*	Micromechanical Modeling for Thermo-Mechanical Reliability in Interconnects	04-4320
T-4 X-5 X-5	Abdallah, Joseph Fontes, Christopher Zhang, Honglin	An Overview of Relativistic Distorted-Wave Cross Sections	04-4327
T-16	Herczeg, Peter	The T-Odd R and D Correlations in Beta Decay	04-4339
T-3	Zhang, Duan	Evolution of Enduring Contact and Stress Relaxation in a Dense Granular Medium	04-4364
T-13	Jarzynski, C. *et al*	Experimental Demonstration of Laws Governing Transitions Between Nonequilbrium	04-4385
T-12	Lesar, Richard	First Principles Study of Ferroelectric Behavior in the Perovskite Structure Oxide Bialo3	04-4406
CNLS T-11	Batista, Cristian Trugman, Stuart	Exact Ground States of a Frustrated 2D Magnet	04-4419
T-11 T-11 T-DO	Kaneshita, Eiji Martin, Ivar Bishop, Alan	Local Edge Modes in Doped Cuprates with Checkerboard Polaronic Heterogeneity	04-4421
T-12 X-7 X-7 CNLS	Holian, Brad Hammerberg, J. Germann, Timothy Ravelo, Ramon	Nanoscale Structure and High Velocity Sliding at Cu/Ag Interface	04-4443

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LANL Group	Author(s)	Title	LAUR No.
T-15	Simakov, Andrei Simakov, Nikolai	Anomaly of Gas Drag Force from on Liquid Droplets in a Turbulent Two-Phase Flow Produced by a Mechanical Jet Sprayer at Intermediate Reynolds Numbers	04-4466
CNLS	Barre, Julien *et al*	Long-Range Interactions, Large Deviation Techniques, Mean-Field Limit	04-4467
T-7 T-7	Tartakovsky, D. Illman, Walter	Asymptopic Analysis of Three-Dimensional Pressure Interference Test: A point-source solution	04-4468
T-8 T-6 T-16 P-21 NIS-7	Nieto, Michael Hayes, Anna Wilson, William Teeter, Corinne Stanbro, William	Antineutrino Detection for Non-proliferation	04-4469
T-11	Lookman, Turab	Pseudospin Description of Intrinsic Inhomogeneities in Models of Structural	04-4491
T-11	Lookman, Turab	Strain Induced Microstructure in Perovskite Managanites	04-4492
T-11	Lookman, Turab	Nanoscale Phase Separation in Complex Functional Materials	04-4493
T-11	Lookman, Turab	Domain Wall Dynamics in Complex Functional Materials	04-4494
T-12	Koslowski, Marisol	Material Length Scales in Plastic Flow	04-4510
T-3	Bronkhorst, Curt	PBX 9501 Molding Prill	04-4511
T-3	Eggert, Kenneth *et al*	A Continental Scale River Modeling Framework Designed Around Topographic Modeling Units with Body Hydrologic and Hydraulic Realism	04-4516
T-3 T-3	Mousseau, Vincent Knoll, Dana	Nonlinear Implicitly Balanced Methods for Nonequilibrium Radiation Diffusion	04-4517
T-DO	Strottman, Daniel	Possible Production of Exotic Baryonia in Relavistic Heavy-Ion Collisions	04-4529
LANSCE-3 T-16 T-16	Haight, Robert Chadwick, Mark Möller, Peter	International Conference on Nuclear Data for Science and Technology, A Summary	04-4531
T-6	Kwiatkowski, A.	Form Factors for *C in the AB Initio No-core Shell Model	04-4541
CNLS T-3 DX-3 T-3 MST-8	Gray, George Maudlin, Paul Hull, Lawrence Zuo, Qiuhai Chen, Shuh-Rong	Predictive Capability in Material Strength, Damage and Fracture -- The Synergy Between Experiment and Modeling	04-4579
T-16 T-16 T-16 T-16 T-16	Lemaire, Sebastien Talou, Patrick Kawano, Toshihiko Madland, David Chadwick, Mark	Correlated Neutron Emission in Fission with Monte-Carlo Methods	04-4592
T-16	Möller, Peter	The Macroscopic-Microscopic Method 101: Achievements, Capabilities and Limitations	04-4594
T-11 T-11	Saxena, Avadh Benoit, Jerome Lookman, Turab	Elasticity of Membranes and Vesicles: Role of topology	04-4595
T-8 T-6	Cooper, Frederick Mihaila, Bogdan	Renormalizing the Schwinger-Dyson Equations in the Auxiliary Field Formulation of Field Theory	04-4605
T-16	Bonneau, Ludovic Quentin, P. Semsoen, D.	Microscopic Calculations of Fission Barriers and Spin of Fission Fragments	04-4606
T-4 T-4	Kilcrease, David Csanak, G. *et al*	Alignment Creation by Elastic Scattering by Ions in a Plasma	04-4626
T-3	Lipscomb, William	Sea Ice Model Development: Toward CICE 4 and CSIM 6	04-4630
T-16	Möller, Peter Sagawa, H.	Global Studies of Shape Isomerism	04-4660

LANL Group	Author(s)	Title	LAUR No.
T-6	Hayes-Sterbenz, A.	Nuclear Theory Applied to Astrophysics, Stockpile Stewardship, and Homeland Security	04-4665
T-16 T-16	Möller, Peter Sierk, Arnold Sagawa, H.	Calculation of Fission Barriers for Nuclei with A>190 for Astrophysical Applications	04-4683
T-16 T-DO	Hale, Gerald Strottman, Daniel	Level Structure and Scattering in Light Nuclei	04-4684
T-11	Martin, Ivar *et al*	Electrical Detection of Electron Spin Resonance of a Single Spin	04-4686
T-8 T-8 T-8 T-8	Bhattacharya, Tanmoy Habib, Salman Steck, Daniel *et al*	Feedback Cooling of Atomic Motion in Cavity QED (Quantum Electrodynamics)	04-4687
T-13	Jarzynski, C.	Response to Cohen and Mauxerall	04-4712
T-16 T-16	Buervenich, T. Madland, David Reinhard, P.	Adjustment Studies in Self-Consistent Relativistic Mean-Field Models	04-4713
T-12	Hay, Philip *et al*	Investigation of Hydrogen Evolving Organics	04-4733
T-DO	Milonni, Peter	Atom-field Interactions with a Frequency Dependent Reservoir	04-4739
T-7 T-7 T-7 CNLS	Berndt, Markus Lipnikov, K. Shashkov, Mikhail Wheeler, Mary Yotov, Ivan	A Mortar Mimetic Finite Difference Method On Non-Matching Grids	04-4740
T-7 CNLS	Jiang, Yi Kiskowski, Maria Alber, Mary	Role of Streams in Myxobateria Aggregate Formation	04-4741
T-12 T-12 CNLS	Pratt, Lawrence Ashbaugh, Henry Paulaitis, Michael *et al*	Deblurred Observation of the Molecular Structure of a Water-Oil Interface	04-4750
T-3	Beyerlein, Irene *et al*	Heterogeneity of Deformation Texture in Equal Channel Angular Extrusion of Copper	04-4767
T-3	Beyerlein, Irene	Finite Element Analysis of the Plastic Deformation Zone and Working Load in Equal Channel Angular Extrusion (Journal Article)	04-4768
T-6	Hayes-Sterbenz, A.	AB-Initio No-Core Shell Model-Recent Results and Future Prospects	04-4774
T-6 T-6 T-DO X-2 C-INC	Hayes-Sterbenz, A. Jungman, Gerard Solem, Johndale Bradley, Paul Rundberg, Robert	Prompt beta spectroscopy as a diagnostic for MIX in ignited NIF capsules	04-4776
T-4 T-12 T-4 P-22	Collins, Lee Kress, Joel Mazevet, Stephane Desjarlais, Michael	Quantum Molecular Dynamics Simulations of Dense Plasmas	04-4780
T-6	Fryer, Christopher	A Million Second Chndra View of Cassiopeia A	04-4787
T-8 T-8	Bhattacharya, T. Gupta, Rajan	B_K from Quenched QCD with Improved Staggered Fermions	04-4788
T-6 T-16 T-16 T-16	Mihaila, Bogdan Chadwick, Mark MacFarlane, R. Kawano, Toshihiko	Analysis of Np-237 ENDF for the Theoretical Interpretation of Critical Assembly Experiments	04-4789
T-6	Luu, Thomas	Application of Bloch-Horowitz Equation to the Alpha Particle and P-Shell Nuclei	04-4790
T-12	Martin, Richard *et al*	Interplay Between M-M and M-Allyl Bonding in Reactivity of M2(PI-ALLYL)4(M = MO, RE)	04-4795

Appendix B–Los Alamos Unlimited Releases (LA-URs)

LANL Group	Author(s)	Title	LAUR No.
T-16	Griesshammer, H.	A Nucleon in a Tiny Box: Masses	04-4810
T-12	Tretiak, Sergei *et al*	Two-photon Absorption and Fluorescence with Triphenylamine Derivatives: Effect of branching and charge-symmetry	04-4845
CNLS	Frauenfelder, Hans	The Energy Landscape in Proteins a Paradigm of Stochastic Complexity	04-4847
T-10 T-10	Perelson, Alan Wu, Hulin *et al*	Modeling Long-term HIV Dynamic and Antiretroviral Response: Effects of drug potency, pharmacokinetics, adherence, and drug resistance	04-4849
T-16 T-16	Chadwick, Mark Talou, Patrick	Uncertainty Quantification in Nuclear Data Evaluations	04-4857
T-10 T-10 T-10 T-10 T-10	Zhang, Ming Gaschen, Brian Foley, Brian Kuiken, Carla Korber, Bette	Evolutionary and immunological implications of N-Linked glycosylation site in HIV	04-4861
T-10	Garcia, Angel	Atomic simulations of protein folding, binding, and aggregation	04-4862
T-7	Austin, Travis	A least squares method for the linear boltzmann equation in the fokker-planack limit	04-4864
T-11	Smith, Darryl	Imaging Spin Flows in semiconductors in the Presence of Electric, Magnetic, and Strain Fields	04-4869
T-1	Wallace, Duane	Theoretical physics enables greatly improved equations of state	04-4878
T-3 T-3	Williams, Todd Bronkhorst, Curt	High Explosive Constitutive Modeling	04-4879
T-11 T-11 T-DO T-11	Zhu, Jian-Xin Rasmussen, Kim Bishop, Alan Balatsky, A.	Observation of breather excitations using inelastic tunneling spectroscopy	04-4903
T-DO	Milonni, Peter	Left-handed light: basic theory	04-4904
T-16	Friar, James *et al*	Charge-Symmetry-Breaking Three-Nucleon Forces	04-4905
T-1 T-12	Niklasson, Anders Weber, Valery Challacombe, W.	Quantum perturbation theory in O(N): AB initio response theory for nanomaterials	04-4908
T-14	Dienes, John	An Approach to the Formation of Crack Networks	04-4915
T-6	Hayes-Sterbenz, A.	Calculation of beta and antineutrino spectra following fission	04-4926
T-8	Nieto, Michael	The pioneer anomaly: the data, its meaning, and future test	04-4928
CNLS X-4	Ramaprabhu, P. Dimonte, Guy	Dependence of the rayleigh-taylor froude number on the density ratio	04-4930
T-DO	Strottman, Daniel	Bi-dimensional quantum tunneling INA time dependent formalism	04-4968
T-12 T-12 CNLS	Lesar, Richard Rickman, Jeffrey Vinals, Jorge	Unified framework for dislocation-based defect energetics	04-4969
T-12	Voter, Arthur	Temperature accelerated dynamics study of radiation damage annealing in MgO	04-4970
T-12	Koslowski, Marisol	Dislocation Patterning and Avalanches in Plastic Deformation	04-4971 04-6189
T-12 T-12	Nemeth, Karoly Challacombe, W.	The quasi-independent curvilinear coordinate approximation for geometry optimization	04-4972
T-16	Gibson, Benjamin	Strangeness Physics, from KEK to J-PRAC	04-5048
T-10	Perelson, Alan	Modeling viral infections	04-5049
T-16	Ginocchio, Joseph	Pseudospin Symmetry and the Nucleon-Nucleon Interactions	04-5056
T-7/CNLS CNLS CNLS	Jiang, Yi Kiskowski, Maria Alber, Mark Newman, Stuart	Chapter 1 biological lattice gas models	04-5062

LANL Group	Author(s)	Title	LAUR No.
T-16	Friar, James Payne, G.	Nuclear Corrections to Hyperfine Structure in Light Hydrogenic Atoms	04-5063
T-10	Garcia, Angel Paschek, Dietmar	Reversible temperature and pressure denaturation of a protein fragment: A replica exchange molecular dynamics simulation study	04-5072
T-15	Murillo, Michael Jones, Chris	Inclusion of atomic/molecular physics in the molecular dynamics simulation of warm dense matter	04-5073
T-15	Tang, Xianzhu Boozer, Allen	Force-Free Magnetic Relaxation in Driven Plasmas	04-5074
T-15	Daligault, Jerome	Impact of Impurity Sedimentation on Cooling of White Dwarfs	04-5075
T-15	Simakov, Andrei Catto, Peter	An ion drift kinetic equation to the second order in the gyroradius expansion	04-5076
T-10 T-10 T-10 T-10 T-10	Zhang, Ming Gaschen, Brian Foley, Brian Kuiken, Carla Korber, Bette	Tracking global patterns of N-Linked glycoslylation site variation in highly variable viral glycoproteins: HIV, SIV, and HCV envelopes and influenza hemagglutinin	04-5078
T-15 T-15	Lukin, Vyacheslav Glasser, Alan	Spectral Element Modeling of Extended MHD Plasma Phenomena	04-5079
T-3	Kashiwa, Bryan Kashiwa, Corey	The Solar Cycolne: Real Hope or Total Madness	04-5080
T-3 DX-3	Kashiwa, Bryan Hull, Lawrence	Multifield closure modeling for metal-loaded high explosives	04-5081
T-10 T-10	Goldstein, Byron Coombs, Daniel	Effects of the geometry of the immunological synapse on the delivery of effector molecules	04-5082
T-3 NIS-5	Kashiwa, Bryan Butler, Gilbert	A Numerical Performance Model for Piezoelectrical Actuators for Jet Noise Reduction	04-5088
T-DO	Zurek, Wojciech	Environment as a witness: selective proliferation of information and emergence	04-5089
T-DO T-13	Milonni, Peter Berman, Gennady	Improving the sensitivity of FM spectroscope using nano-mechanical cantilevers	04-5090
T-DO	Bishop, Alan	Nonlinear friction of a damped dimer sliding on a periodic substrate	04-5091
T-13 T-13	Berman, Gennady Doolen, Gary	Quantum computation using self-assembled molecular spin arrays (theoretical part)	04-5092
T-13 T-13	Berman, Gennady Gurvitz, Shmuel	Charge qubit measurement and decoherence in mesoscopic detectors	04-5094
T-13 T-13 CNLS T-13	Berman, Gennady Borgonovi, Fausto Gorshkov, V. Gurvitz, Shmuel	Perturbation theory for scalable quantum computation, and measurement of spin qubits	04-5095
T-11 CCS-3 T-11 T-16	Ortiz, Gerardo Somma, Rolando Dukelsky, Jorge Rombouts, Stefan	Exactly-solvable models derived from a generalized gaudin algebra	04-5096
T-6	Timmes, Francis	On variations in the peak luminosity of type IA supernovae	04-5097
T-6	Heger, Alexander Woosley, Stan	Nucleosynthesis and evolution of Pop III stars	04-5098
T-6 X-4	Timmes, Francis Dimonte, Guy	Simulating astrophysical simulation codes	04-5099
T-1	Niklasson, Anders	Density matrix purification theory for non-orthogonal representations	04-5100
T-15 T-4 T-15	Daligault, Jerome Csanak, G. Murillo, Michael	Variational Equation of State Model for Dense, High Energy-Density Matter	04-5106
T-12 T-12	Pauler, Denise Kress, Joel	Oxidation of nitroplasticizer in plastic bonded explosive PBX 9501	04-5110

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LANL Group	Author(s)	Title	LAUR No.
T-12 X-7 T-14 T-14	Holian, Brad Germann, Timothy Strachan, A. Maillet, J.-B.	Non-equilibrium molecular dynamics studies of shock and detonation presses in energetic materials	04-5111
T-12	Pratt, Lawrence	Back to the Future of Hydrophobic Effects and Molecular Bioscience	04-5115
T-12	Tretiak, Sergei	Non-Linear and Non-adiabatic Dynamics of Excited States in Electronic Materials	04-5116
T-12 T-12	Babikov, Dmitri Kendrick, Brian	Cyclic-N3: Significant Geometric Phase Effects in the Vibrational Spectra.	04-5119
T-12 T-14 T-12	Gan, Chee Tymczak, C. Challacombe, W.	Linear scaling computation of the fock matrix. IX. Parallel computation of the coulomb matrix	04-5120
T-12	Paliwal, Amit Asthagiri, D. *et al*	Pressure denaturation of Staphyloccal Nuclease studied by neutron small-angle scattering and molecular scattering and molecular simulation	04-5121
T-12 T-12 T-12	Batista, Enrique Martin, Richard Hay, Philip	Density functional investigations of the properties and thermochemistry of UFn(n=1...6) and UCIn(n=1...6)	04-5122
T-6	Heger, Alexander Woosley, Stan	Evolution of massive population III stars	04-5139
T-8	Nieto, M. *et al*	ESA to consider a designated test of the pioneer anomaly	04-5141
T-13 T-13	Chertkov, Michael Jarzynski, C. Chernyak, V	Dynamical generalization of work equality	04-5164
T-13 T-13	Chertkov, Michael Jarzynski, C. Chernyak, V	Hierarchy of work relations and fluctuation theorem for stochastic dynamics	04-5165
T-13 CNLS T-13	Berman, Gennady Kamenev, Dmitry Tsifrinovich, V.	Collective decoherence of the superpositional entangled states in quantum shor	04-5166
CNLS T-12	Reichhardt, Charles Reichhardt, C.	Statics and dynamics of colloidal particles in perodic traps	04-5167
T-6	Heger, Alexander	Nuclear astrophysics theory	04-5168
T-6	Heger, Alexander Woosley, Stan	Evolution of massive population III stars	04-5169
CNLS	Chung, Yeo-Jin *et al*	Ultra-short pulses in linear and nonlinear media	04-5170
T-15 EES-IGPP	Lapenta, Giovanni Kronberg, Philipp	A comparison of observations and simulations in the jets of the radio galaxies 3C303 and 3C274	04-5172
T-15 EES-IGPP	Lapenta, Giovanni Delzanno, Gian	Theory and Simulation of the Sheilding of Emitting Dust Particles	04-5173
T-15 T-15	Lapenta, Giovanni Ricci, Paolo *et al*	3D magnetic reconnection: evolution of x-lines and x-points	04-5174
T-15 T-15	Lapenta, Giovanni Markidis, Stefano	Parallel implicit kinetic simulation with parsek	04-5176
T-15 T-15 X-1 T-3	Lapenta, Giovanni Ricci, Paolo Daughton, William Brackbill, Jeremiah	Simulation study of rapid onset of magnetic reconnection	04-5177
T-10	Perelson, Alan	An overview of computational and theoretical immunology	04-5181
T-1	Niklasson, Anders	Magnetism of Fe clusters embedded in Co matrix from first principles theory	04-5217
T-1	George, Denise	Effect of Anisotropic Interfacial Energy on Grain Boundary Distributions during Grain Growth	04-5218
T-1	Niklasson, Anders	The linear scaling self-consistent perturbed projection method for high order response	04-5219

LANL Group	Author(s)	Title	LAUR No.
T-DO	Milonni, Peter	Fast light, slow light, and left-handed light	04-5220
T-15	Tang, Xianzhu	A Laboratory Helicity Injection Perspective of Plasma Jet Formation by a conducting Keplerian accretion disk	04-5222
T-15 T-3	Chacon, Luis Knoll, Dana	Pixied3D: A Parallel, Implicit, Extended MHD 3D Code	04-5223
T-15 T-15	Nebel, Richard Finn, John Bathke, C.	Magnetic and electric helical drive for RFPS	04-5225
T-15	Richardson, A *et al*	Noise stabilization: markov analysis, circuits, and broken symmetries	04-5226
T-15 T-15	Finn, John Jones, Chris	Issues related to MHD equilibrium reconstruction	04-5227
T-15 T-15	Finn, John Chacon, Luis	Ideal and resistive plasma resistive wall modes and control: linear and non-linear	04-5228
T-13	Chertkov, M. *et al*	Effects of surface tension on immiscible rayleigh- taylor turbulence	04-5233
T-10 T-10	Leitner, Thomas Tung, C.-S.	Recombination, 3D network structure, multiple transmission and subpopulation frequency shifts in a mother-to-child transmission case	04-5234
T-10 T-10	Dixit, Narendra Perelson, Alan *et al*	Unraveling a mystery: how ribavirin improves interferon response rates in hepatitis c virus infection	04-5235
T-8 T-8	Bhattacharya, T. Gupta, Rajan	Calculating epsilon prime over epsilon using HYP staggered fermions	04-5236
CNLS	Sakhanenko, Nikita *et al*	Graphs applied in theory of white-box software testing	04-5237
T-13 CNLS D-1 CNLS	Toroczkai, Zoltan Kozma, Balazs Bassler, Kevin Hengartner, N. Korniss, Gyorgy	Gradient networks	04-5238
T-12 T-12 T-12 T-12	Voter, Arthur Cogoni, Marco Uberuaga, Blas Colombo, Luciano	On the Diffusion of Small Self-Interstitial Clusters in Silicon	04-5290
T-16	Möller, Peter	Global Nuclear Structure Calculations for Astrophysics, Recent Developments	04-5293
T-6	Herwig, Falk *et al*	Nitrogen in the early universe	04-5294
T-6 LANSCE-3 T-6	Herwig, Falk Reifarth, Rene Timmes, Francis	Nuclear astrophysics with neutron facilities at LANL and RIA	04-5296
T-7	Louck, James	Permutation matrices and the representations of matrices with fixed-line sum	04-5299
DX-3 CCS-3 DX-3 P-25 X-4 P-25	Prestridge, K. Cannon, T Hull, Lawrence Merrill, Frank Potocki, Mark Schwartz, Cynthia Zuo, Qiuhai	Uranium Fracture Experiments and Simulations)	04-5302
T-7	Hagberg, Aric *et al*	Bloch-front turbulence in a periodically forced belousov-zhabotinsky reaction	04-5331
CNLS	Ecke, Robert	An experimental perspective	04-5335
T-4	James, Daniel	Quantum Teleportation	04-5364
T-4	James, Daniel	Photonic Quantum Information Systems	04-5365
T-DO T-DO T-DO	Paz, Juan Roncaglia, Augusto Saraceno, Marcos	Qubits in phase space: wigner function approach to quantum error correction and the mean king problem	04-5383
T-DO	Milonni, Peter	Einstein and objective reality: a love story	04-5384

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LANL Group	Author(s)	Title	LAUR No.
T-14	Strachan, A. *et al*	Large electrostrictive strain at gigahertz frequencies in PVDF nanoactuator: computational device design	04-5386
T-14 T-11 T-12 T-11 T-14	Welch, Paul Rasmussen, Kim Chitanvis, Shirish Lookman, Turab Sewell, Thomas	Direct determination of the free energy functional for phase separating systems	04-5387
T-4 X-5	Colgan, James Fontes, Christopher	The Validity of Classical and Perturbative Quantal Methods for Electron-Impact Ionization from Excited States of H-Like Ions	04-5423
T-3	Lipscomb, William	An Incremental Remapping Transport Scheme on a Spherical Geodesic Grid	04-5431
T-3 T-3	Hunke, Elizabeth Maltrud, Mathew Karcher, Michael	Diagnostics for Atlantic Water Circulation and Properties	04-5432
T-14 T-14	Strachan, A. Sewell, Thomas	Towards a molecular-level characterization of the sensitivity of energetic materials: plasticity under a dynamic and static loading	04-5433
T-10 T-10	Leitner, Thomas Maljkovic, I. *et al*	Prevalence of Drug-Resistant HIV-1 Variants in Untreated Individuals in Europe: Implications for Clinic Management	04-5434
T-10	Leitner, Thomas *et al*	Improved HIV-1 Viral Load Determination Based On Reversed Transcriptase Activity Recovered From Human Plasma	04-5435
T-15	Simakov, Andrei Catto, Peter	Evaluation of the neoclassical radial electric field in a collisional tokamak	04-5436
T-16	Page, Philip	Hybrid and Conventional Baryons in the Flux Tube and Quark Models	04-5438
T-6 X-DO	Cox, Arthur Guzik, Joyce	Predictions of periods and growth rates of solar radial, F-, and G-Modes	04-5439
T-13 T-13	Adib, Artur Jarzynski, C.	Unbiased estimators for the simulation of classical fluids	04-5440
T-10 T-10	Leitner, Thomas Maljkovic, Irina *et al*	The Calculated Genetic Barrier for Drug Resistance Mutations in Six Different Non-B Subtypes and Two CRF's in a Large European Dataset is Largely Similar to Subtype B	04-5441
T-10	Kuiken, Carla *et al*	Full Length Sequencing of HCV Identifies Novel Regions of the Viral Genome Associated With Response To Antiviral Therapy	04-5442
T-10 T-10 T-10 T-10	Kuiken, Carla Yusim, Karina Boykin, Laura Richardson, R.	A New Hepatitis C Sequence Database in Los Alamos	04-5443
T-10 T-10 T-10	Kuiken, Carla Ribeiro, Ruy Perelson, Alan *et al*	HCV NS5A 1a Pre-treatment sequence variation and viral kinetics in African Americans and Caucasians	04-5444
T-10 T-10 T-10 T-10	Blinov, Mikhail Faeder, James Goldstein, Byron Hlavacek, William	Modeling of Multi-Component Species: Object-Oriented Data Structure and XML Description of Rule-Based Modeling Based on Molecular Domains	04-5445
T-10 T-10 T-10 T-10 T-10	Kuiken, Carla Agrawal, Ashish Tao, Ning Richardson, R. Bruno, William	New Tools At The Los Alamos Hepatitis C Database Website	04-5446
T-10	Torney, David *et al*	A Symbolic Operator Approach To Several Summation Formulas For Power Series	04-5447
CNLS T-DO T-11 T-11	Barre, Julien Bishop, Alan Lookman, Turab Saxena, Avadh	On adaptability and "intermediate phase" in randomly connected networks	04-5449
T-DO	Milonni, Peter	Negative refractive index	04-5450

LANL Group	Author(s)	Title	LAUR No.
T-1	George, Denise	Grain Boundary Properties, Populations and Texture Development	04-5451
T-10 T-10 T-10	Zhang, Ming Gaschen, Brian Foley, Brian Blay, Wendy Haigwood, Nancy	Tracking global patterns of N-Linked glycoslylation site variation in highly variable viral glycoproteins: HIV, SIV, and HCV envelopes and influenza hemagglutinin	04-5452
T-10	Kuiken, Carla	A Proposal to Sequence a Number of Complete Genomes of Uncommon Strains of the Hepatitis C Virus	04-5453
T-10	Kuiken, Carla *et al*	Ancient CO-Speciation of Simulation Foamy Viruses and Primates	04-5454
T-10 T-10	Mokili, John Foley, Brian	Identification of a Novel Clade of Human Immunodeficiency Virus Type 1 in Democratic Republic of Congo	04-5455
T-10 T-10 T-8	Kuiken, Carla Kommander, K. Kunstman, Kevin Bhattacharya, T. Kunstman, Jennifer	Evolution of Human Immunodeficiency Virus Type 1 Sequences in Patients Receiving Combination Antiretroviral Therapy	04-5456
T-7 T-7	Xiu, Dongbin Tartakovsky, D.	Differential equations in random domains	04-5497
T-7 B-3 T-7	Jiang, Yi Jelena, P.-G. Freyer, James Cantrell, Charles	A multiscale model for avascular tumor growth	04-5498
T-13 T-12	Berman, Gennady Tretiak, Sergei	Characteristic Parameters and Dynamics of Two-Qubit System in Self-Assembled	04-5499
T-11	Thompson, Russell	Report on conformationally asymmetric block copolymer parameters	04-5502
T-16	Reddy, Sanjay	Matter at Extreme Density and Its Role in Neutron Stars and Supernova	04-5532
T-8	Gupta, Rajan	The future of the poor, illiterate, and marginalized populations	04-5534
T-14	Chitanvis, Shirish	Activity on Ultrabeam Program at Los Alamos	04-5537
T-3	Lipscomb, William	An Incremental Remapping Transport Scheme on a Spherical Geodesic Grid	04-5542
T-3	Beyerlein, Irene *et al*	Texture Formation During Equal Channel Angular Extrusion of Fee and Bee Materials: Comparison with Simple Shear	04-5568
T-3	Beyerlein, Irene *et al*	A Crystal Plasticity Finite Element Analysis of Texture Evolution in Equal Channel Angular Extrusion	04-5569
T-12 T-12 T-12	Sonnenberg, Jason Hay, Philip Martin, Richard Bursten, Bruce	Density functional studies of uranyl cyanide, isocyanide, carbonyl, and hydroxide complexes: four versus five equatorial ligands	04-5580
T-12	Martin, R. *et al*	Hybrid Density Functional Theory Study of Plutonium Oxides	04-5581
T-12	Reichhardt, C.	Dislocation formation in atomistic friction simulations	04-5582
CCS-2 CNLS NIS-2 T-3 CNLS T-3 CCS-2 EES-2	Fisher, Karen Kamm, James Davis, Anthony Maltrud, Mathew Dean, Sumner Jones, Philip Hecht, Matthew Bleck, Rainer	Matching Patches in Ocean Simulations and Observation	04-5583
T-3 T-3 T-3	Zou, Qisu Zhang, Duan Vanderheyden, W. *et al*	Application of a Flip MPM-MFM Method for Simulating Weapon-Target Interaction	04-5605
T-12	Voter, Arthur	Accelerated molecular dynamics methods	04-5609
T-12	Voter, Arthur	Kinetic monte carlo	04-5610

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LANL Group	Author(s)	Title	LAUR No.
T-12 T-12 T-12	Koslowski, Marisol Lesar, Richard Thomson, Robb	Energetics and noise in dislocation patterning	04-5611
T-12 T-12	Pratt, Lawrence Asthagiri, D.	Quasi-Chemical and Hydrophylic Hydration	04-5612
T-6	Miller, Warner	X-Ray line profile signatures of a hardeen- petterson disk, around a rotating black hole	04-5624
T-10	Goldstein, Byron *et al*	Experimental analysis and modeling of cell-cell linkages formed by immunoadhesin alefacept and FC receptors	04-5626
CNLS T-11 T-11 T-11	Bulaevskii, Lev Hruska, Marina Shnirman, A. Smith, Darryl	Nondemolition measurements of a single quantum SPI by use of josephson oscillations	04-5638
T-DO T-DO	Zurek, Wojciech Paz, Juan	Resilient quantum computing	04-5639
T-8	Friedland, A. *et al*	Atmospheric neutrinos as probes of neutrino-matter interactions	04-5646
T-12 CNLS	Hanson, David Hawley, M. *et al*	Mechanical Properties of Polymeric Materials	04-5660
T-12 T-12	Voter, Arthur Uberuaga, B. *et al*	Dynamical Simulations of Radiation Damage and Defect Mobility in MgO	04-5662
T-4 T-4	Hakel, Peter Abdallah, Joseph	X-ray Spectroscopy of Dense Plasmas Produced by Isochoric Heating with Ultrashort Laser Pulses	04-5690
T-4 T-4	Hu, Suxing Collins, Lee	Imaging molecular structures by few-cycle-okyse driven electron diffraction	04-5691
T-12 T-12 T-12 T-12	Voter, Arthur Cogoni, Marco Colombo, Luciano Uberuaga, Blas Mattoni, A.	Atomistic Study of Small Boron Interstitial Clusters Dissolution in C-SI	04-5706
T-11	Rasmussen, Kim	Tunable NANO patterning by diblock copolymers in small confinements	04-5711
T-16	Pieper, Steven Wiringa, Robert Carlson, Joseph	Quantum Monte Carlo Calculations of Excited States in A=6-8	04-5712
T-16	Rupak, Gautam	Pairing in Asymmetric Fermi System:	04-5713
T-3	Williams, Todd	A General, Stochastic Transformation Field Theory	04-5727
T-3	Williams, Todd	Stochastic Transformation Field Analysis (STFA)	04-5728
T-10 T-10	Mokili, John Korber, Bette	The spread of HIV in Africa	04-5753
T-10	Perelson, Alan *et al*	Analysis of HIV cytopathicity using a new method for quantitating viral dynamics in cell culture	04-5754
T-1 T-1	Burkert, Till Eriksson, Olof Simak, Sergei Ruban, Andrei	Magnetic anisotropy of L10 iron-platinum and iron-magnanse-platinum	04-5755
T-7 T-7	Shashkov, Mikhail Lipnikov, K. Brezzi, Franco	Convergence of mimetic finite difference method for diffusion problems on polyedral meshes	04-5756
T-15 T-15	Murillo, Michael Daligualt, Jerome	A Semiclassical Model for Ionic Self-Diffusion in White Dwarfs	04-5757
T-15 T-15 T-3	Lapenta, Giovanni Markidis, Stefano Vanderheyden, W.	Design and development of high performances parallel particle in cell (PIC)	04-5771
T-15 EES-IGPP	Lapenta, Giovanni Delzanno, Gian	Collective behaviour of a system of emitting dust particles	04-5772

LANL Group	Author(s)	Title	LAUR No.
T-15 T-15	Lapenta, Giovanni Finn, John	3D MHD simulation and the role of null points in coronal reconnection	04-5773
T-15 T-15	Lapenta, Giovanni Ricci, Paolo *et al*	3D Magnetic Reconnection: Evolution of X-Lines	04-5774
T-15 T-3 T-15 X-1	Lapenta, Giovanni Brackbill, Jeremiah Ricci, Paolo Daughton, William	Kinetic simulations of magnetic reconnection in plasma with different beta values	04-5776
T-10	Perelson, Alan *et al*	Hepatitis C Viral Kinetics	04-5778
T-10	Perelson, Alan *et al*	Determination of virus burst size in VIVO using a single-cycle SIV in rhesus macaques	04-5779
T-10 T-10 T-10	Blinov, Mikhail Faeder, James Hlavacek, William	Modeling Signal Transduction Systems Without Ignoring Their Combinatorial Complexity	04-5780
T-11 T-DO	Rasmussen, Kim Kalosakas, George Bishop, Alan Choi, Chu Usheva, Anny	DNA dynamically directs its own transcription initiation	04-5782
CNLS T-DO T-11 T-11	Barre, Julien Bishop, Alan Lookman, Turab Saxena, Avadh	The cavity method and the ridity transition	04-5783
T-10 T-10	Germanidis, G. Ribeiro, Ruy *et al*	Hepatitis B Kinetics under six treatment regimens	04-5786
T-12	Sonnenberg, Jason *et al*	Understanding the electronic structure and magnetic properties of tungsten-methylidyne	04-5797
T-12 C-SIC	Sonnenberg, Jason Neu, Mary Bursten, Bruce	Plutonium (IV) siderophore docking possibilities: a DFT investigation	04-5798
T-3	Mousseau, Vincent	Modern Time Integration Methods Applied to the Thermal Hydraulic Equations	04-5800
T-6 T-6	Fryer, Christopher Heger, Alexander	Binary merger scenario for the collapsar engine of gamma-ray bursts and hypernovae	04-5802
T-6 T-6 T-16	Luu, Thomas Hayes-Sterbenz, A. Friar, James	Estimates for electromagnetically exciting nuclear isomers	04-5803
T-6	Colgate, Stirling	Our Magnetic Universe	04-5804
T-10 T-10 T-10	Perelson, Alan Ribeiro, Ruy Davenport, M. *et al*	Impact of Virus-Specific CD8+ T Lymphocytes on the Outcome of Experimental SHIV Infection	04-5805
T-10 T-10 T-10	Garcia, Angel Nymeyer, Hugh Gnanakaran, S.	Exploring the Energy Landscape of Proteins	04-5806
T-15 EES-IGPP	Lapenta, Giovanni Kronberg, Philipp	Simulation of astrophysics jets: collimation and expansion in radio lobes	04-5807
T-8	Teodoro, Luis *et al*	Large scale structure and cosmic rays revisited	04-5809
T-DO	Bishop, Alan	Statics, dynamics and manipulations of bright matter-wave solitons in optical lattices	04-5811
T-3 T-3	Eggert, Kenneth Jones, Philip	A High Resolution Coupled Model of the North Atlantic, Arctic Oceans, Their Sea Ice, and Continental Fluvial and Glacial Processes for the Purpose of Understanding the Sensitivity of Thermohaline Circulation to Fresh Water Inflows	04-5829
EES-IGPP T-3	Peacock, Synte Maltrud, Mathew	Transit-Time Distribution in a Global Ocean	04-5830

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LANL Group	Author(s)	Title	LAUR No.
T-10	Korber, Bette Taylor, Jay	Intrasubtype Superinfection and Recombination	04-5831
T-15 EES-IGPP	Lapenta, Giovanni Kronberg, Philipp	Observations and simulations of kiloparsec-scale jets	04-5833
T-12 DX-2 MST-10 T-4	Babikov, Dmitri McGrane, Shawn Efimov, Anatoly James, Daniel	Ultrafast Optical Quantum Control for Molecular Vibrational Quantum Computation	04-5837
T-12 T-12 T-12	Lesar, Richard Thomson, Robb Koslowski, Marisol	Noise and Energetics in Dislocation Patterning	04-5864
MST-8 CNLS MST-8 CNLS T-3	Cady, Carl Gray, George Chen, Shuh-Rong Bingert, John Maudlin, Paul	Influence of Temperature, Strain Rate, and Crystallographic Texture on the Mechanical Behavior of Tantalum and Lead (abstract for JOWOG Meeting, Aldermaston UK NOV 2004)	04-5883
T-15 T-15	Lapenta, Giovanni Markidis, Stefano Fairfield, Frederick	High Performances on Simulation of Developmental Biology on a Hybrid Grid	04-5909
T-15	Tang, Xianzhu	Force-Free Magnetic Relaxation In A Driven Toroid	04-5910
T-15	Tang, Xianzhu	Implicit Fusion Plasma Simulation	04-5911
T-10 T-10 T-10	Korber, Bette Szinger, James Yusim, Karina *et al*	Consistent CTL Targeting of Immunodominant Regions in HIV Across Multiple Ethnicities	04-5919
T-10 T-10	Korber, Bette Szinger, J. *et al*	Coevolutionary influences of HIV and HLA: The Dominant Role of HLA-B	04-5920
T-10	Yusim, Karina *et al*	CD8+ Cell Responses to Variable Proteins Predominant in Early HIV-1 Infection	04-5922
T-4 T-4 T-12	Mazevet, Stephane Collins, Lee Kress, Joel	Simulation of matter under extreme density - temperature conditions	04-5935
T-16	Friar, James	The Nuclear Physics of Precise Atomic Spectroscopy	04-5942
T-6 T-8 T-6	Warren, Michael Habib, Salman Heitmann, Katrin	Robustness of Cosmological Simulations I: Large Scale Structure	04-5954
MST-6 MST-6 T-3	Necker, Carl Alexander, David Beyerlein, Irene	The Use of Recrystallization to Elucidate the Inhomogeneous and Anistropic Conditions in Multiple Pass Equal Channel Extruded Copper	04-5965
T-7 T-7	Arriola, Leon Beyer, William	Stability of f(=y) = f(x) + f(y) over p-adic fields	04-5998
T-7 T-7	Arriola, Leon Hyman, James	Non-adjoining sensitivity analysis of initial value problems	04-5999
CNLS X-4	Ramaprabhu, P Dimonte, Guy	Single-mode dynamics of the rayleigh-taylor instability at any density ratio	04-6000
T-12 T-12	Voter, Arthur Uberuaga, B. *et al*	Atomistic Models of Plutonium-Gallium Alloys	04-6010
MST-8 T-3 MST-6 LANSCE-12 MST-8	Li, Saiyi Beyerlein, Irene Alexander, David Vogel, Sven Bourke, Mark	Texture Development During Multi-Pass Equal Channel Angular Extrusion of Copper: Neutron Diffraction Characterization and Polycrystal Modeling	04-6018
T-11	Saxena, Avadh	Disorder in magnetic and structural transitions: pretransitional phenomena and kinetics	04-6029
T-11	Nussinov, Zohar *et al*	A continuous zero temperature transition within the two dimensional quantum orbital compass model	04-6030

LANL Group	Author(s)	Title	LAUR No.
T-11 T-11 T-11	Nussinov, Zohar Vekhter, Ilya Balatsky, A.	Low temperature "incommensurate glassy" critical points in electronic orders	04-6031
T-11 T-11 T-11	Shenoy, S Lookman, Turab Saxena, Avadh	Spin, charge and lattice coupling in multiferroic materials	04-6032
T-7 T-7	Li, Jia Hyman, James	Differential susceptibility epidemic models	04-6033
T-7 T-7	Hyman, James Li, Jia	The Reproductive Number for an HIV Model with Differential Infectivity and Staged Progression	04-6034
T-7	Tartakovsky, D.	Asymptotic analysis of three-dimensional pressure interference tests: a line-injection line-monitoring solution	04-6035
T-10 T-10 T-10	Hlavacek, William Blinov, Mikhail Faeder, James	Graphical Readable and Precise Representation of Signal-Transduction Networks	04-6050
T-10 T-11	Garcia, Angel Beleva, Violeta Rasmussen, Kim	Molding DNA Bubble Formation at the Atomic Scale	04-6051
CNLS	Ecke, Robert	The Physical Mechanisms of Two-Dimensional Turbulence: Inverse and Direct Cascade Process.	04-6068
T-10 T-10 T-10 T-10 T-10	Kuiken, Carla Richardson, Russell Tao, Ning Agrawal, Ashish Yusim, Karina	New Research Tools: The Hepatitis C Database in Los Alamos	04-6072
T-6	Hayes-Sterbenz, A.	Summary of 178 HF 30-YR Isomer Experiments	04-6119
T-6	Herwig, Falk	The Second Stars	04-6121
T-6 CCS-4 T-6	Fryer, Christopher Hungerford, Aimee Timmes, Francis	Radiation hydrodynamics in astrophysics	04-6122
T-13	Ben-Naim, Eli Redner, S	Winning quick and dirty: the greedy random walk	04-6125
T-3	Mousseau, Vincent	Modern Time Integration Methods Applied to the Thermal Hydraulic Equations	04-6130
T-3	Hunke, Elizabeth	On the Controls of Atlantic Water Circulation in the Arctic Ocean Looking for Mechanisms in the UW, LANL and AWI Models	04-6131
T-8	*et al* Mottola, Emil	Short-distance and initial state effects in inflation: stress tensor and decoherence	04-6142
T-6	Heger, Alexander Woosley, Stan Sriot, Henk	Presupernova evolution of differentially rotating massive stars including magnetic	04-6161
T-10 T-10 T-10	Hlavacek, William Faeder, James Blinov, Mikhail	Graphical Rule-Based Representation of Signal-Transduction Networks	04-6182
T-15	Lapenta, Giovanni Camporeale, E.	Model of Bifurcated Current Sheets in the Earth's Magnetotail: Equilibrium and Stability	04-6183
T-10	Hlavacek, William Yang, Jin	Signaling on Scaffold	04-6184
T-12 T-12	Peery, Travis Pratt, Lawrence	AB initio molecular dynamics study of ionic clathrate hydrates	04-6187
T-12	Koslowski, Marisol Ortiz, Michael	Mechanics of dissipative systems: andrade creep	04-6188
CCS-2 T-12	Swaminarayan, S. Lesar, Richard	Effect of pressure on short range dislocation interactions	04-6190
T-12 T-12	Voter, Arthur Uberuaga, B. *et al*	Accelerated Dynamics Study of Vacancies in Delta-Plutonium	04-6201

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LANL Group	Author(s)	Title	LAUR No.
T-16	Hale, Gerald Hofmann, Hartmut	New Results for the ^{6}Li an ^{10}B Neutron Standard Cross Sections from R-Matrix Analyses and Microscopic Calculations for the ^{7}Li and ^{11}B Systems	04-6210
T-16	Hale, Gerald	Status of the International Neutron Cross Section Standards File	04-6211
T-16	Friar, James Payne, G.	The Nuclear Physics of Hyperfine Structure in Hydrogenic Atoms	04-6212
T-16 T-16 T-16	Talou, Patrick Chadwick, Mark Young, Phillip	The MCGNASH Nuclear Reaction Code: Progress Status	04-6213
T-16	Carlson, Joseph	Microscopic Approaches to Light Nucleus Reactions	04-6214
T-16 T-16 T-16 T-16 T-16	Kawano, Toshihiko Talou, Patrick Chadwick, Mark Macfarlane, Robert Young, Phillip	Nuclear Data Evaluations for Americium Isotopes	04-6215
T-4	Collins, Lee	Los Alamos Summer School (LASS) 2004 Research Reports	04-6222
T-11 T-11 T-1	Zhu, Jian-Xin Albers, Robert Wills, John	Equation of motion approach to dynamical mean field theory	04-6265
CNLS	Ernst, Matthieu Ripoll, M	A model system for classical fluids out of equilibrium	04-6268
T-16 T-16 T-16 T-16 T-16	Young, Phillip Chadwick, Mark Macfarlane, Robert Madland, David Möller, Peter	Systematic Analysis of Uranium Isotopes	04-6269
T-13 T-13	Jarzynski, Christopher Adib, Artur	Unbiased estimators for spatial distribution functions of classical fluids	04-6270
T-13 T-7 T-7 CNLS	Chertkov, Michael Kolokolov, Igor Lebedev, Vladimir Turitsyn, C.	Statistics of polymer extension in random flow with mean shear	04-6271
T-12	Walker, Robert	Spectral Library Clustering	04-6272
T-6	Mihaila, Bogdan	On two approaches to the coupled-cluster expansion	04-6301
T-7 CNLS T-7	Hagberg, Aric Bold, Katherine Swart, Pieter	Differential equations on network: From dynamics to structure	04-6302
T-DO	Dalvit, Diego	Hertz potentials approach to the dynamical casimir effect: cylindrical cavities with	04-6303
T-6	Parish, Meera *et al*	Fermion-mediated BCS-BEC crossover in ultracold K-40 gases	04-6304
T-7	Chartrand, Rick	The Monge-Kantorovich Problem and a Nice Solution	04-6305
T-7	Peleg, Avner	Strongly non-gausian statistics of optical soliton parameters due to collisions in the presence of delayed raman response	04-6306
T-7 3	Kurien, Susan *et al*	Anomalous scaling of low-order structure functions of turbulent velocity	04-6307
T-7	Peleg, Avner	Ostwald ripening and coalescence in globally conserved interface-controlled coarsening	04-6308
EES-IGPP T-7 CNLS	Titi, Edriss Holm, Darryl Cao, Chongsheng	On-the clark-a model of turbulence global regularity and long-time dynamics	04-6309
T-7	Svyatskiy, Daniil	Mimetic finite difference discretization of diffusion- type problems on unstructured polyhedral meshes	04-6310
T-7 T-7	Hagberg, Aric Swart, Pieter Schult, Dan	Network: growing a python-based toolbox for complex networks	04-6311

LANL Group	Author(s)	Title	LAUR No.
T-3	Dukowicz, John	Structure of the Barotropic Mode in Layered Ocean Models	04-6368
T-16	Möller, Peter	Musings on the Discovery of Element Z+113 and Model Predictions of its Decay Properties	04-6372
T-16 T-16 T-16 T-16 T-16	Talou, Patrick Young, Phillip Kawano, Toshihiko Chadwick, Mark Pitcher, Eric	New Evaluation of Am Isotopes for AFCI	04-6373
T-16	Rupak, Gautam	Nuclear Physics from Lattices QCD: Finite Lattice Spacing and Volume Effects	04-6378
T-15	Nebel, Richard *et al*	An Electrostatic Confinement Experiment to Explore The Periodically Oscillating Plasma Sphere	04-6379
T-7	Arriola, Leon	Forward sensitivity analysis: adjoint & non-adjoint problems	04-6410
T-16 T-16 T-16 T-16 T-16	Lemaire, Sebastien Chadwick, Mark Madland, David Kawano, Toshihiko Talou, Patrick	Monte Carlo Simulations of the Statistical Decay of Fission Fragments in Thermal N+235U Reaction and Spontaneous Fission of 282CF	04-6411
T-7	Arriola, Leon	Hyperbolic Fixed Pointes & First Integrals/ Invariants of OE's	04-6412
T-1	Crockett, Scott	Analysis of SESAME 3720, a new Aluminum Equation of State	04-6442
T-14	Kober, Edward	Effects of Molecular Weight on the Phase Separation of a Polyester Polyurethane	04-6447
T-16 T-16 T-16 T-16 T-16	Young, Phillip Chadwick, Mark Macfarlane, Robert Madland, David Möller, Peter	Systematic Analysis of Uranium Isotopes	04-6455
T-16 T-16 T-16 T-16 T-16	Young, Phillip Chadwick, Mark Macfarlane, Robert Talou, Patrick Kawano, Toshihiko	Analysis and Evaluation of Neutron Reactions on ^{238}U	04-6456
T-6 T-6 T-6	Rockefeller, G. Fryer, Christopher Warren, Michael	Diffuse x-rays from the arches and quintuplet clusters	04-6468
T-16 T-16	Page, Philip Hale, Gerald	^{8}Be Nuclear Data Evaluation	04-6469
T-16	Möller, Peter	Mass Formulas: Theory of Parameterization of Data?	04-6470
T-16	Pitcher, Eric	Progress on Transmutation Physics within the Advanced Fuel Cycle Initiative	04-6471
T-11 T-11	Bouchet, Johann Albers, Robert *et al*	Reply to the comment on "new pseudophase structure for alpha-pu"	04-6472
X-7 T-13	Plohr, Jee-Yeon Plohr, Bradley	Linearized analysis of richtmyer-meshkov flow for elastic materials	04-6473
T-4 T-4 T-4 T-4 T-4 T-4 T-4 X-5 X-5	Kilcrease, David Magee, Norman Abdallah, Joseph Colgan, James Hakel, Peter Mazevet, Stephane Sherrill, Manolo Fontes, Christopher Zhang, Honglin	Transition from LEDCOP to ATOMIC	04-6483
T-4	Colgan, James *et al*	Time-Dependent Close-Coupling Calculations for the Double Photoionization of HE and H2	04-6484

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LANL Group	Author(s)	Title	LAUR No.
T-4	Karkuszewski, Z.	Spectral Analysis of Short Time Signals	04-6485
T-4 T-4 T-12	Mazevet, Stephane Collins, Lee Kress, Joel	QMD - Simulating Warm, Dense Matter	04-6491
T-11 T-11 T-11	Nussinov, Zohar Avoras, D Balatsky, A. Shnirman, A	Spin berry phases on keldysh contours and applications: new dynamics in magnets and single spins systems	04-6501
T-12	Holian, Brad	Large Scale Simulations of (1) Crack Propagation and Friction of Metals; (2) Superconducting Vortex Lattices; and (3) Colloidal Systems	04-6502
T-10 T-10	Perelson, Alan Dixit, Narendra	Multiple Infections of Cells By HIV: Dynamics and Scaling	04-6503
T-11 T-1	Baker, George Johnson, James	Comparison of the exact series expansion with the spherical cellular model of an electron-ion system	04-6504
T-11 T-1	Baker, George Johnson, James	Perturbation theory calculations for an electron-ion system	04-6505
T-11 T-11 T-11	Boulaevskii, Lev Hruska, Marina Maley Smith, D.	Tunneling spectroscopy of magnetic excitations in layered magnetic superconductors	04-6507
T-15	Chacon, Luis	A Comprehensive Spatio-Temporal Numerical Scheme for Fully Implicit 3D Extended MHD	04-6508
T-4	James, Daniel	Quantum Teleportation	04-6551
T-6	Herwig, Falk *et al*	The Domains of Instability for the Pulsating PG 1159 Stars	04-6571
T-3 T-3 T-3	Zou, Qisu Zhang, Duan Vanderheyden, W. *et al*	Application of a Flip-MGM-MFM Method for Simulating Weapon-Target Interaction	04-6592
T-14	Strachan, A.	Highlights: Multiscale Modeling of Ferroelectric Ceramics for Microwave Applications	04-6601
T-14	Strachan, A. *et al*	Thermal Decomposition of Nitromethane From Molecular Dynamics	04-6602
T-15	Simakov, Andrei	A Drift Kinetic Equation Exact Through Second Order in Gyro-Radius Expansion	04-6618
T-15 T-15	Lapenta, Giovanni Zuccaro, Gianluca Maizza, G.	Particle in Cell Simulation of Combustion Synthesis of TIC Nanoparticles	04-6619
T-10 T-10 T-10 T-10	Perelson, Alan Ribeiro, Ruy Powers, Kimberly Talal, Andrew	Modeling the Viral Dynamics of HCv in Patients Treated with Pegylated Interferon Alpha 2B	04-6620
T-10	Foley, Brian *et al*	Human Immunodeficiency Virus Type 1 Genome RNA Sequences in the Female Genital Tract and Blood: Compartmentalization and Intrapatient Recombination	04-6621
T-3	Johnson, Norman	Capability Assessment for DHS' Biological Warning and Incident Characterization (BWIC) Project	04-6636
T-3 ESA-WR	Williams, Todd Tippetts, Trevor	Physics-Based Modeling of Composite Materials	04-6637
CNLS CNLS MST-8 T-3 MST-8	Gray, George Bingert, John Chen, Shuh-Rong Maudlin, Paul Cady, Carl	Influence of Temperature, Strain Rate, and Crystalographic Texture on the Mechanical Behavior of Tantalum and Lead	04-6648
T-6	Herwig, Falk	Period-abundance relations in s-process enhanced EMP binaries	04-6660
T-6 CCS-4	Fryer, Christopher Hungerford, Aimee	Neutron star formation	04-6661

LANL Group	Author(s)	Title	LAUR No.
T-6 T-4 T-11 MST	Mihaila, Bogdan Parish, Meera Timmermans, Eddy Blagoev, Krastan Littlewood, Peter	BCS-BEC crossover with a finite-range interaction	04-6662
T-16 T-16	Buervenich, T. Madland, David	Relativistic Point-Coupling Models for Finite Nuclei	04-6663
T-11 T-16	Nussinov, Zohar Nussinov, Shmuel	Non-relativistic bose-einstein condensates, kaon droplets, and q-balls	04-6687
T-11 T-11	Saxena, Avadh Lookman, Turab Shenoy, S	Universal description of domain walls in ferroic transitions	04-6688
T-11 CNLS T-11 CNLS	Saxena, Avadh Khare, Avinash Rasmussen, Kim Samuelsen, M.	Exact solutions of the saturable discrete nonlinear schrodinger equation	04-6689
T-DO CNLS	Abanov, Artem Chubukov, Andrey	Anomalous scaling at the quantum critical point	04-6690
T-16 T-16	Buervenich, T. Madland, David	Fission-Fragment Scattering Within Actinide Crystal Structures	04-6691
T-7 T-7	Loubere, Raphael Shashkov, Mikhail	A subcell remapping on staggered polygonal grids for arbitrary-langrangian-eulerian methods	04-6692
T-7	Peleg, Avner	Emergence of dissipative disorder due to collisions of optical in the presence of delayed raman response	04-6693
T-7 T-7	Loubere, Raphael Shashkov, Mikhail Despres, Bruno	A mixing model for multimaterial computations in fluid dynamics	04-6694
T-DO P-21	Milonni, Peter Hughes, Richard	Initial contact with ARDA on "effects of propagation in air on phonton fluctuations, entanglement and polarization"	04-6700
T-DO T-DO T-DO	Strottman, Daniel Rizea, Constantin Carjan, Nicolae	New perspectives for the time-dependent approach to proton emitting nuclei	04-6701
CNLS T-3 CNLS T-3	Kamm, James Maltrud, Mathew Dean, Sumner Jones, Philip *et al*	Matching Patches in Ocean Simulations and Observations	04-6727
T-14	Strachan, A.	Highlights: Atomistic Modeling of Energetic Materials	04-6737
T-14	Strachan, A.	Ab Initio equation of state of PETN: pressure induced phase transition	04-6738
T-13	Toroczkai, Zoltan *et al*	Scalability, random surfaces and synchronized computing networks	04-6740
T-16	Steiner, Andrew *et al*	Isospin Asymmetry in Nuclei and Neutron Stars	04-6745
T-3 CNLS CNLS	Maudlin, Paul Bingert, John Gray, George	Deviations form Taylor-Based Texture Evolutions as Observed in Taylor Cylinder Testing	04-6746
T-3 X-4 ESA-WR X-7	Canfield, Thomas Potocki, Mark Prime, Michael Zocher, Marvin	Results from the TEPLA Material Model in the Shavano Project	04-6752
T-6	Heger, Alexander	Evolution and nucleosynthesis of massive stars	04-6771
T-6	Heger, Alexander	Models for Type I X-rays bursts	04-6772
T-16	Gibson, Benjamin *et al*	Anomalous Magnetic Moment Contributions to Nucleon -Nucleon Bremsstrahlung in the Soft-Photon Approximation	04-6773
CNLS	Ernst, Matthieu Ripoll, M	Power law tails of time correlates in a mesoscopic fluid model	04-6774

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LANL Group	Author(s)	Title	LAUR No.
T-4 T-11	Timmermans, Eddy Santamore, D Gaudio, Sergio	Zero sund in a single component fermion- bose-einstein condensate mixture	04-6790
T-12	Goupalov, Serguei	Continuum model for long-wavelength phonons in 2D graphite and carbon manotubes	04-6791
T-8 T-8	Abazajian, Kevork Xu, Yongzhong	The Third Data Release of the Sloan Digital Sky Survey	04-6801
T-8	Shirman, Yuri *et al*	Twisted fermions and a tiny strong CP (change parity) phase	04-6802
 T-8	Terning, John *et al*	Curing the ills of higgsless models: s-parameter and unitarity	04-6806
T-8	Abazajian, Kevork	Cosmology from all-scale galaxy clustering	04-6807
T-8	Abazajian, Kevork	The viability of a cosmological lepton asymmetry in reconciling sterile neutrinos with primordial nucleosyntheis	04-6808
T-4 X-2 X-2	Kilcrease, David Gunderson, Mark Haynes, Donald	Using Line Shifts as a Spectral Diagnostic	04-6824
T-3 CNLS MST-8 MST-8 CNLS	Maudlin, Paul Bingert, John Henrie, Benjamin Cady, Carl Gray, George	Local and Polycrystalline Textures in Body-Centered Cubic Metals: Their Evolution and Effect on Mechanical Response	04-6825
T-15	Lapenta, Giovanni	Mathematical and numerical models for the coupling of neutronics and thermal-hydrodynamics in circulating fuel nuclear reactors	04-6859
T-7	Austin, Travis	Flux calculations in the heat transfer component of telluride	04-6860
T-7	Hyman, James *et al*	Brouwer's Law: optimal multistep intergators for celestial mechanics	04-6861
T-6 T-6	Heger, Alexander Woosley, Stan Fryer, Chris Baraffe, Isabelle	Evolution and fate of the first stars	04-6862
T-6	Warren, Michael	N-body simulation data - standard cosmology model, series F, 1 billion particles each	04-6863
T-16 T-16 T-16 T-16 T-16	Kawano, Toshihiko Talou, Patrick Chadwick, Mark Macfarlane, Robert Young, Phillip	Nuclear Data Evaluations for Americium Isotopes	04-6864
T-16 T-16 T-16 T-16 T-16	Lemaire, Sebastien Talou, Patrick Madland, David Kawano, Toshihiko Chadwick, Mark	Correlated Neutron Emission in Fission	04-6865
T-13 T-13 CNLS T-13	Berman, Gennady Borgonovi, Fausto Gorshkov, V. Tsifrinovich, V.	Modeling and simulations of a single-spin measurement using MRFM	04-6866
T-12 T-12 B-4 B-4 B-4	Magyar, Rudolph Tretiak, Sergei Shreve, Andrew Wang, Hsing-Lin Gao, Yuan	A joint theoretical and experimental study of polyphenlene-acetylene molecular wires	04-6867
T-13	Hastings, Matthew	Statistical mechanics of interfering links	04-6877
CNLS CNLS T-3	Gore, Robert Kamm, James Rauenzahn, Rick *et al*	Prediction of Richtmer-Meshkov Instability: Coupling Experiments, Physical Models, and Simulations	04-6905

LANL Group	Author(s)	Title	LAUR No.
CNLS	El Shawish, S Bonca, J Batista, Cristian	Electron spin resonance of SRCU 9B00 at high magnetic field	04-6918
CNLS	Kenzelmann, M Batista, Cristian Chen, Y Broholm, C	The S=1/2 chain in a staggered field: novel bound-spinon state and the effect of a discrete lattice	04-6919
CNLS	*et al* Batista, Cristian	Phase diagram of the one-dimensional two-channel kondo lattice model	04-6920
T-11 CNLS T-11	Boulaevskii, Lev Koshelev, A Maley, Martin Tachiki, Masashi	Radiation from josephson vortex flow in layered superconductors	04-6921
T-11	Peschel, O Czycholl, G Schnell, Ilan	Combined AB-initio-and many-body treatment of the electronic structure of metals	04-6922
T-11 T-DO	Ares, Saul Voulgarakis, Nikos Rasmussen, Kim Bishop, Alan	Theory of bubble nucleation and cooperativity in DNA melting	04-6923
CNLS T-12	Reichhardt, Charles Reichhardt, C.	Pinning and dynamics of Colloids on one Dimensional Periodic Potentials	04-6940
UCSC T-6	Woosley, Stan Heger, Alexander Zhang, Weiqun	Supernovae, gamma-ray bursts and stellar rotation	04-6941
T-4	James, Daniel *et al*	Teleportation and atoms	04-6947
T-16	MacFarlane, R.	Testing New Actinide Cross Sections Proposed for ENDF/B-VII	04-6948
T-16	Page, Philip	^{8}Be Nuclear Data Evaluations	04-6949
T-16 T-16 T-16 T-16	Talou, Patrick Chadwick, Mark Young, Phillip Kawano, Toshihiko	The Nuclear Reaction Code McNASH	04-6950
T-1	Crockett, Scott	An Introduction to Equation of State and Shock Physics Research	04-6952
T-8	Friedland, A.	Solar and atmospheric neutrinos and non-standard neutring interactions	04-6955
T-12 T-12 T-1	Nemeth, Karol Challacombe, W. Niklasson, Anders	Trace Correcting Density Matrix Extrapolation	04-6956
T-1	Clements, Brad	Polymer behavior under dynamic loading	04-6973
T-4	Cohen, James	Dissociation and ionization in capture of antiprotons and negative muons by the hydrogen molecular ion	04-6978
T-8 T-6	Teodoro, Luis Warren, Michael	The mass function on mass scales of 10^9 mass of the sun to 10^15 mass of the sun	04-6979
MST-8 CNLS MST-8 MST-8 T-3 MST-8	Cerreta, Ellen Gray, George Cady, Carl Xue, Qing Bronkhorst, Curt Henrie, Benjamin	The Mechanical Response of Tantalum Loaded Dynamically in Shear	04-7008
T-4 X-5 T-4 X-5	Colgan, James Fontes, Christopher Abdallah, Joseph Zhang, Honglin	Large-Scale Kinetics Modeling of Non-LTE Plasmas	04-7011
T-6	Rauch, T Herwig, Falk	On the evolutionary status of extremely hot helium stars-are O(He) stars successors or RCrBr stars?	04-7012

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LANL Group	Author(s)	Title	LAUR No.
CNLS	Redner, Sidney	Citation statistics from more than a century of physical review	04-7017
CNLS	Barre, Julien *et al*	Time scale for magnetic reversal and the noergodicity threshold in a finite size mean field heisenberg model	04-7019
CNLS T-11	Batista, Cristian Nussinov, Zohar	Generalized elitzur's theorem and dimensional reduction	04-7020
T-10	Garcia, Angel *et al*	Molecular Dynamics Study of Water Penetration in Staphylococcal Nuclease	04-7029
T-10 T-10 T-10 T-10 T-10	Yusim, Karina Richardson, Russell Tao, Ning Szinger, James Funkhouser, Robert	The Los Alamos Hepatitis C Immunology Database	04-7030
T-12 CNLS	Tretiak, Sergei Piryatinski, Andrei	Light Amplification using Inverted Core/Shell Nanocrystals: Towards Lasing in the Single-Exciton Regime	04-7033
T-3	Jones, Philip	Climate, Ocean, and Sea Ice Modeling	04-7034
T-8	Nieto, Michael Holzscheiter, M. Turyshev, Slava	Controlled anthihydrogen propulsion for NASA'S future in very deep space	04-7072
T-8	Turyshev, Slava Nieto, Michael Anderson, John	The pioneer 10 and 11 lessons for a mission to test the pioneer anomaly	04-7073
T-8 T-8	Terning, John Kaloper, Nemanja Terning, John	Exorcising w is less than negative 1	04-7074
T-10	Tung, C.-S.	A Knowledge Based Approach for Modeling RNA Loop Structures	04-7075
T-3	Mousseau, Vincent	A fully implicit hybrid solution method for a two-phase thermal-hydraulic model	04-7078
T-8 T-8	Abazajian, Kevork Habib, Salman	The nonlinear cosmological matter power spectrum with massive neutrinos	04-7094
T-7 T-7 T-7	Loubere, Raphael Staley, Martin Wendroff, Burton	The repair paradigm: new algorithms and applications to compressible flow	04-7095
T-7 T-7	Loubere, Raphael Lipnikov, K.	The arbitrary-langrangian-eulerian code for 1D compressible flows	04-7096
T-14	Strachan, Al.	Vibrational Density of States and Lindeman Melting Law	04-7099
T-12 CNLS	Hanson, David Hawley, Marilyn	A physical mechanism for the Mullins Effect in silica-filled polydimthysiloxane	04-7102
T-16	Gibson, Benjamin *et al*	Four-Body Calculation of the First 0-Plus Excited State of Helium-4	04-7103
T-14 T-14 CNLS	Smith, Grant Bardenhagen, Scott Bedrov, Dmitry	Multiscale Modeling of Viscoelastic Properties of Polymer Nanocomposites	04-7104
T-4 X-7 X-7	Mazevet, Stephane Kowalski, Piotr Saumon, Didier	Non-Ideal Equation of State, Refraction and Opacities in Very Cool, Helium-Rich White Dwarf Atmospheres	04-7105
T-15	Tang, Xianzhu Boozer, A	Force-free magnetic relaxation in driven plasmas	04-7107
T-16	Goldman, Terrance	Understanding Penta Quark with Various Quark Models	04-7116
T-DO	Younger, Stephen	Reciprocity, sanctions, and the development of mutual obligation in egalitarian societies	04-7118
T-DO	Younger, Stephen	Reciprocity, tolerated theft, and reproduction strategies in foraging societies	04-7119
T-DO	Younger, Stephen	Behavioral norms and the evolution of societies	04-7120

LANL Group	Author(s)	Title	LAUR No.
T-3	Addessio, Francis	Modeling composite materials: a review of LANL programs	04-7123
T-3 DX-3 T-3	Zuo, Qiuhai Hull, Lawrence Maudlin, Paul	Modeling Plastic Instability and Strain Localization in Explosively-Driven U6 HEMI	04-7124
T-3	Jones, Philip	Computational Requirements for Future Climate Simulations	04-7128
CNLS X-5	Redner, Sidney Sood, Avneet Ben-Avraham, D	First passage properties of the erdos-renyi random graph	04-7141
T-10 T-10 T-10	Ribeiro, Ruy Perelson, Alan Davenport, Miles	CD8 T cell and viral dynamics in a macaque model of HIV vaccination	04-7143
T-10 T-10 T-10	Ribeiro, Ruy Perelson, Alan Davenport, Miles Zhang, Lei	Effects of antibody on viral kinetics in simian/human immunodeficiency virus infection	04-7144
T-4 T-4 T-4 T-4 T-4	Kilcrease, David Abdallah, Joseph Colgan, James Hakel, Peter Magee, Norman	Equation of state, occupation probabilities, and opacity results from the new Los Alamos opacity code atomic	04-7165
T-3	Jones, Philip	Status and Progress of the Climate, Ocean, and Sea Ice Modeling (COSIM) Project	04-7166
T-16	Page, Philip	Hybrid and Conventional Bayrons in the Flux-Tube and Quark Models	04-7171
T-16	Page, Philip	8Be Nuclear Data Evaluation	04-7172
T-16	Greiner, Walter Buervenich, T.	Fulleren-Structure in Superheaies, Nuclei Containing Antimatter and Cold Compression	04-7173
T-14 T-14	Kober, Edward Menikoff, Ralph	A Novel Method for Static Equation of State Development: Equation of State of Sylgard 184 to 10GPA	04-7178
T-4 T-12 T-4	Mazevet, Stephane Kress, Joel Collins, Lee	Simulations of shocked nitrogen oxide	04-7201
T-4 T-4 T-4 X-1	Sherrill, Manolo Abdallah, Joseph Csanak, George Dodd, Evan	Coupled electron and atomic kinetics through the solution of the Boltzmann equation for generating time-dependent x-ray spectra	04-7209
T-13 CNLS	Berman, Gennady Izrailev, Felix	The fermi-past-ulam problem: 50 years of progress	04-7220
CNLS	Chung, Yeo-Jin	Fluctuations of bit-error-rate with randomly varying birefringence in optical fibers	04-7221
CNLS	Redner, Sidney Krapvisky, Paul	Log-network	04-7223
T-16 T-16	Buervenich, T. Madland, David	Nuclear Ground-State Observables from Relativistic Mean-Field Models: Masses, Densities, Radii, Single-Particle Levels	04-7259
T-8	Xu, Yongzhong	Application of voronoi tessellation on finding large-scale structures	04-7272
T-16	Lynn, John	Theory in Evaluation of Actinide Fission and Capture Cross Sections	04-7295
T-6	Rauch, Tomas Herwig, Falk	Searching for the progeny of RCrBr stars- investigations on the evolutionary status of O(He) stars	04-7296
T-6	Warren, Michael	Using fast parallel n-body methods to determine the mass function of dark matter halos	04-7297
T-6	Heger, Alexander	The fate of the first stars	04-7298
T-6	Herwig, Falk Lucatello, Sara	Radial Velocity Monitoring of Carbon-Enhanced Metal-Poor Stars	04-7299
T-6	Herwig, Falk Pollaco, Don	The Sakurai Object: temperature evolution and restarting the fast wind	04-7300

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LANL Group	Author(s)	Title	LAUR No.
T-10 T-10 T-10	Faeder, James Blinov, Mikhail Hlavacek, William	Rule-based modeling of biochemical networks	04-7315
T-3 T-3 T-3	Hunke, Elizabeth Maltrud, Mathew Lipscomb, William Holland, Marika	POP and CICE in the Arctic Ocean Model Intercomparison Project	04-7316
T-4 X-7 X-7	Mazevet, Stephane Saumon, Didier Kowalski, Piotr	New Opacities for Dense Helium and the Composition of Helium Rich, Very Cool White Dwarf Atmospheres	04-7320
T-4 T-4 T-4	Hu, Suxing Colgan, James Collins, Lee	Triple-Differential Cross-Sections for Two-Photon Double Ionization of He Near Threshold	04-7333
T-14 T-12	Strachan, A. Holian, Brad	Energy Exchange Between Mesoparticles and their Internal Degrees of Freedom	04-7346
T-14 T-12	Strachan, A. Holian, Brad	Mesodynamical Simulations with Quantum Mechanical Description of the Thermal	04-7347
T-14 P-24	Strachan, A. Luo, Shengnian	Anisotropic Plasticity of NiA1 Under Dynamical Loading	04-7348
T-14	Han, Si-ping Strachan, A.	Thermal Decomposition of Nitromethane Using Reactive Molecular Dynamics	04-7350
T-14	Menikoff, Ralph	Empirical Equations of State for Solids	04-7353
X-5 X-5 T-16	Pronskikh, V. Mashnik, Stepan Prael, Richard Sierk, Arnold	Study of 660-MeV Proton-Induced Reactions on 129-I	04-7360
T-13 T-DO	Berman, Gennady Bishop, Alan Chernobrod, Boris Gorshkov, V.	Novel approach for optical readout of solid-state magnetic memory based on spin-polarized light-emitting diode	04-7361
T-16	Kawano, Toshihiko	Methodology of Covariance Evaluation for TH and U Nuclear Data	04-7367
T-8	Nieto, Michael Turyshev, Slava Anderson, John	The Pioneer Anomaly: The data its Meaning and a Future test	04-7368
T-7	Tartakovsky, D. Illman, Waters	Spatial, scale, and directional dependence of equivalent pneumatic properties of unsaturated fractured tuff	04-7372
T-12 T-12	Masunov, Artem Tretiak, Sergei Basan, Guillermo	Theoretical study of the effects of solvent environment on photophysical properties and electronic structure of paracyclophane	04-7373
X-5 T-16	Mokhov, N. *et al* Mashnik, Stepan Sierk, Arnold	Physics Models in the MARS15 Code for Accelerator and Space Applications	04-7374
T-16	Hale, Gerald Hofmann, Hartmut	Neutron Standard Cross Sections for 1H and 6Li from R-Matrix Analyses and Microscopic Calculations for the N-N and 7Li Systems	04-7375
T-3 T-3	Zhang, Duan Ma, Xia	Local Grain-Grain Interactions in Granular Explosive	04-7382
CNLS T-3 DX-3 T-3 MST-8	Gray, George Maudlin, Paul Hull, Lawrence Zuo, Qiuhai Chen, Shuh-Rong	Predicting Material Strength, Damage, and Fracture -- The Synergy Between Experiment and Modeling	04-7402
T-DO	Bishop, Alan	An exact solution of the slow-light problem	04-7412
T-3	Torres, David	KIVA-4 Development	04-7422
T-3	Mousseau, Vincent	Transitioning from Interpretive to Predictive in Thermal Hydraulic Codes	04-7423

LANL Group	Author(s)	Title	LAUR No.
T-10	Faeder, James Ladanyi, Branka	Solvation Dynamics in Reverse MIcelles: The Role of HeadGroup-Solute Interactions	04-7434
CNLS	Ecke, Robert	Using soap films and shallow layers to study fluid turbulence in flatland	04-7464
T-1 T-1 T-1	Gruber, Jason George, Denise Kuprat, A. *et al*	Effect of anisotropic grain boundary properties on gain boundary place distribution - During grain growth	04-7468
CNLS MST-8 T-3 MST-8 MST-8	Gray, George Cerreta, Ellen Maudlin, Paul Mason, Thomas Chen, Shuh-Rong	Processing, Mechanical Response, and Modeling of Defense Materials	04-7481
T-14 T-11 T-11 T-14	Bedrov, Dmitry Sewell, Thomas Rasmussen, Kim Thompson, Russell Sewell, Thomas	Bi-directional mapping between self-consistent field theory and molecular dynamics: application to immiscible	04-7496
T-14 T-12 T-12	Tymczak, C. Challacombe, W. Gan, Chee	Linear scaling Ab initio molecular dynamics	04-7497
T-14 T-11	Kober, Edward Rasmussen, Kim	Models for Estane and Other Polymers	04-7498
T-12	Kress, Joel	Toward science-based lifetime predictions for the plastic bonded explosive PBX 9501	04-7507
T-3 T-3 T-3 T-3	Harstad, Eric Addessio, Francis Zuo, Qiuhai Maudlin, Paul	Phase Model Development, Implementation and Validation	04-7512
T-1	Clements, Brad	Phase transitions in dynamically loaded composites	04-7517
T-1	Mas, Eric	Macro- to Meso- length scale studies of PBX 9501 for the thermal and loading dynamics of energetic materials	04-7519
T-12 NMT-DO C-SIC NMT-DO	Hay, Philip Clark, David Gordon, John Poli, Rinaldo	On the Existence and Stability of Lanthanide-Main Group Element Multiple Bonds, New Paradigms in the Bonding of the 4F-Elements. A DFT Study of CP2CeX(X=F+,O,NHCH-,CH2) and the Ligand Adduct CP2Ce(CH2)(NH3)	04-7533
T-10	Garcia, Angel *et al*	Molecular Dynamics Study of Hydration of the Protein Interior	04-7536
T-15	Tang, Xianzhu Boozer, A.	Resonant Away From Resonances	04-7537
T-1	Clements, Brad	Polymer Behavior under Dynamics Loading	04-7542
T-16	Carlson, J. *et al*	Parity Violation in Few-Nucleon Systems	04-7551
T-6	Timmes, Francis	Astrophysical theory and simulation for nuclear astrophysics experiments at the rare isotope accelerator	04-7552
T-1 T-1	Rudin, Sven Wills, John	First principles calculations of the thermodynamics of ZRN and U	04-7591
T-1 T-1	Rudin, Sven Johnson, James	Density functional theory calculations on EOS and phase stability of BE	04-7592
CNLS MST-8 T-3 MST-8 MST-8	Gray, George Cerreta, Ellen Maudlin, Paul Mason, Thomas Chen, Shuh-Rong	Influence of Temperature, Strain Rate, and Crystallographic Texture on the Mechanical Behavior of TA and PB (AV presentation for the JOWOG 32 Meeting, Aldermaston UK, NOV 2004)	04-7596
T-16	Carlson, Joseph	Dilute Fermi Gases	04-7606
T-16	Reddy, Sanjay	Matter at Extreme Density and Its Role in Supernova and Neutron Stars	04-7607

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LANL Group	Author(s)	Title	LAUR No.
T-16 X-2 CNLS T-16	Macfarlane, Robert Macinnes, Michael Little, Robert Chadwick, Mark	Critical Assembly Data Testing for Nuclear Cross Sections	04-7608
T-12	Hanson, David	Micro-mechanical modeling of PBX 9501 binder	04-7611
T-3	Johnson, Norman	Diversity: A Weapon of Mass Construction (AV presentation for UCSF Student Enrichment Seminar Series, OCT 2004 San Francisco CA)	04-7628
T-4 T-4 T-4 X-7 X-7	Mazevet, Stephane Hakel, Peter Kilcrease, David Saumon, Didier Kowalski, Piotr	CHEMEOS: An Equation-of-State Model for New Los Alamos Opacity Calculations	04-7634
T-4 X-2 X-2	Kilcrease, David Gunderson, Mark Haynes, Donald	Using Line Shifts as a Spectral Diagnostic	04-7635
T-13	Jarzynski, C. *et al*	Experimental test of the crooks fluctuation theorem by irreversible measurements of mechanical work in RNA molecules	04-7636
T-11 T-11 T-11	Ahluwalia, Rajeev Lookman, Turab Saxena, Avadh Cao, Wenwu	Domain size dependence of pieoelectric properties of ferroelectrics	04-7637
T-11 T-11 T-11	Balatsky, A. Vekhter, Ilya Zhu, Jian-Xin	Impurity-induced states in conventional and unconventional superconductors	04-7638
T-7 CNLS	Wohlberg, Brendt Brislawn, Chris	Reversibility of even-length integer to integer filter banks with symmetric extension	04-7659
T-7 T-7	Shashkov, Mikhail Lipnikov, K.	The error-minimization-based rezone strategy for arbitrary lagrangian-eulerian methods	04-7660
T-3 T-3	Zhang, Duan Ma, Xia	Local Grain-Grain Interactions in Granular Explosive	04-7674
T-8	Abazajian, Kevork	Primordial helium-4	04-7696
T-8	Abazajian, Kevork	Neutrino clustering in dark matter halos	04-7697
T-16	Gibson, Benjamin	Highlights of the KEK Strangeness Program Since 2000	04-7698
T-16	*et al* Madland, David	The Practitioner's Optical Model	04-7733
T-16	Möller, Peter	Structure Models Relevant for R-Process	04-7734
T-16	Möller, Peter	Mass Models and Nuclear Structure Applications for Astrophysics	04-7735
T-3 X-DO CCS-4 T-7	Knoll, Dana Margolin, Len Morel, Jim Shashkov, Mikhail	Physically Motivated Discretization Schemes -- A Strategy for Increased Predictiveness (Journal report for Los Alamos Science)	04-7736
T-10	Bruno, William Halpern, Aaron	Quantitative Measurement of Covariation on Evolutionary Tree with Application to Contact Prediction	04-7739
T-3 T-3 T-3 T-3	Zou, Qisu Zhang, Duan Padial-Collins, Nely Vanderheyden, W.	Multiphase Flow Simulation of Non-Shock Initiation	04-7748
T-3	Hunke, Elizabeth	Advances in Sea Ice Modeling Techniques	04-7749
T-12 T-14 T-14	Holian, Brad Strachan, A. Kober, E. *et al*	Atomistic and Mesoscale Modeling of Mechanical and Chemical Processes in Energetic Materials	04-7755

LANL Group	Author(s)	Title	LAUR No.
T-15 T-1	Glasser, Alan Lukin, Vyacheslav Liseikin, V Kitaeva, I	Adaptive grid generation for magnetically confined plasmas	04-7763
  T-16 T-16	Ichikawa, T. Iwamoto, Akira Möller, Peter Sierk, Arnold	The Barrier for Cold-Fusion Production of Super heavy Elements	04-7793
T-16	Page, Philip	A=8 Reactions, Charged Particle Reactions (Mainly)	04-7804
T-16	Page, Philip	P + 13C Rightarrow Source Reaction for Interrogation & Photonuclear Work	04-7805
T-15	Lapenta, Giovanni	ASCI Hydrocomponents Miniproject Error Estimator	04-7817
T-15	Daligault, Jerome	Quantum Theory of Constrained Dynamics A New Approach to Time Dependent Density Functional Theory	04-7818
T-16	Chadwick, Mark	Nuclear Cross Sections for Simulation	04-7826
T-16	Chadwick, Mark	Progress in Nuclear Physics for NNSA-CEA Collaboration	04-7827
CNLS	Ecke, Robert	Kelvin helmholtz mixing in experiments on oceanic overflows	04-7828
T-10	Perelson, Alan *et al*	Study of Pharnocodynamics of Antiretroviral Agents in HIV-1 Infected Patients Using Viral Dynamic Models With Consideration of Drug Susceptibility and Adherence	04-7829
T-10 T-10	Perelson, Alan Ribeiro, Ruy *et al*	Viral Kinetics in Acute SIV/SHIV Infection: Estimation of the Basic Reproductive Ratio (R0)	04-7830
T-10 T-10	Perelson, Alan Dixit, Narendra *et al*	HIV Decay Rates Do Not Increase With The Addition of Enfuvirtide To A Combination of Boosted Saquinavir and Efavirenze: A Randomized, Controlled Trial (HIV-NAT 012)	04-7831
 CNLS T-12	Beck, Thomas Paulaitis, Michael Pratt, Lawrence	The potential distribution theorem and the statistical thermodynamics of molecular solutions	04-7891
MST-8 CNLS T-3	Mason, Thomas Gray, George Maudlin, Paul	A Review of the Materials Modeling Report at Los Alamos	04-7905
T-1 T-1	Bock, Nicholas Coffey, Dermot Wallace, Duane	Adiabatic and non-adiabatic contributions to the free energy from the electron-phonon interaction	04-7939
CNLS	Greeff, Carl	Modeling of dynamic phase transitions with applications to titanium and zirconium	04-7940
T-1 T-3 T-1 T-3	Greeff, Carl Addessio, Francis Rudine, Sven Harstad, Eric *et al*	Modeling Dynamic Phase Transitions in Zirconium 2004)	04-7941
T-1	Clements, Brad	Polymer Behavior under Dynamics Loading	04-7951
T-6	Mihaila, Bogdan	Critical analysis of NP-237 ENDF for the theoretical interpretation of critical assembly experiments	04-7959
T-7	Loubere, Raphael Despres, Bruno	Convergence of repair algorithms in 1D	04-7960
CNLS	Chowell-Puente, G. *et al*	A simple epidemic model with under-reporting for some benign diseases: acute hemorrhagic conjunctivitis as an example	04-7961
T-15 T-15	Lapenta, Giovanni Chacon, Luis	A Nonlinear, fully coupled adaptive grid strategy	04-7962
T-10	Foley, Brian *et al*	Sensitivity and specificity of the viroseq HIV-1 genotyping systems for detection on HIV-1 drug resistance mutation using an ABI prism 3100 genetic analyzer	04-7966

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LANL Group	Author(s)	Title	LAUR No.
T-13 T-12	Berman, Gennady Rinkevicius, Z. Allara, David Tretiak, Sergei	Characteristic parameters and dynamics of two-qubit system in self-assembled monolayers	04-7991
T-10	Torney, David *et al*	Radioactive-source detection by sensor networks	04-7992
T-15 T-6	Murillo, Michael Weisheit, Jon	Atoms in Dense Plasmas	04-7993
  T-6	Hajduk, Marcin Zijlstra, Albert Herwig, Falk	The reincarnation and second death of a star	04-7996
T-15 T-5	Murillo, Michael Jones, Chris	Inclusion of atomic/molecular physics in the molecular dynamics simulation of warm dense matter	04-8005
T-3 DX-3	Kashiwa, Bryan Hull, Lawrence	Status of Closure Modeling for Metal-Loaded HE Using DNS	04-8033
T-3 T-3	Ma, Xia Zhang, Duan	Enduring Contacts in Dense Granular Material	04-8034
T-12 T-12 T-12	Kress, Joel Asthagiri, D. Pratt, Lawrence	An Ab Initio Molecular Dynamics and Quasi-Chemical Study of H+(AQ)	04-8044
T-15	Tang, Xianzhu	Finite amplitude instability in takens-bogdonov-type dynamical systems	04-8048
T-15	Tang, Xianzhu	Flux Amplification in Helicity Injected Spherical Tori	04-8049
CNLS T-13 T-11	Mozyrsky, Dima Hastings, Matthew Martin, Ivar	Intermittent polaron dynamics: born-oppenheimer out of equilibrium	04-8050
T-6	Heger, A. *et al*	Neutrino nucleosynthesis	04-8051
T-15 T-6 T-15 T-15	Murillo, Michael Weisheit, Jon Daligault, Jerome Turner, Leaf	Free-Free Radiation in Strongly Coupled Plasmas	04-8077
T-13	Ben-Naim, Eli	Opinion dynamics: rise and fall of political parties	04-8087
 T-16	*et al* Reddy, Sanjay	Hybrid Stars that Masquerade as Neutron Stars	04-8091
CCS-4 T-3	Carrington, David Mousseau, Vincent	Preconditioning and Solver Optimization Ideas for Radiative Transfer	04-8110
CNLS X-4	Ramaprabhu, P. Dimonte, Guy	Dependence of the rayleight-taylor froude number on the density ratio	04-8131
CNLS MST-10	Ecke, Robert Rivera, Michael	2D Turbulence: experiments, cascades, and mechanisms	04-8133
T-1 T-1	Brahme, A George, D. *et al*	Validation of 3D simulation of gain growth and recrystallization based in 3D x-ray microscopy	04-8134
T-7	Staley, Martin	Core: Conservative remapper	04-8141
CNLS	Ecke, Robert	Consideration of an experiment to measure mixing in oceanic-like fluid overflows	04-8189
T-12	Goupalov, Serguei	Chriality dependence of or raman cross section in carbon nanotubes	04-8192
T-1	George, Denise	Validation of 3D Simulation of Grain Growth and Recrystallization Based on 3D X-ray Microscopy	04-8193
T-3 T-3 T-3	Zou, Qisu Vanderheyden, W. Zhang, Duan	Modeling Friction Initiation of Solid Explosives	04-8203
T-3 T-3 T-3	Zhang, Duan Zou, Qisu Vanderheyden, W.	Particle-in-Cell Method in Multiphase Flow Simulations	04-8204
T-6 T-6	Mihaila, Bogdan Hayes-Sterbenz, A.	Probability of initiating a divergent fission chain: Commentary	04-8230

LANL Group	Author(s)	Title	LAUR No.
T-16	Carlson, Joseph	Superfluid Fermions from Atomic Gases to Neutron Stars	04-8231
T-3	Beyerlein, Irene	Substructure hardening model for strain path change S in copper	04-8255
T-3 T-3	Schraad, Mark Harlow, Francis	A Stochastic Constitutive Model for Disordered Cellular Materials / Part I: Finite-Strain Uni-Axial Compression/Journal of the Mechanics and Physics of Solids	04-8256
T-16	Carlson, Joseph	Simulations of Dilute Superfluid Fermi Gases	04-8272
T-16	Friar, James Payne, G.	Deuteron Dipole Polarizabilities and Sum Rules	04-8273
T-12	Magyar, R. *et al*	Exact exchange density- functional calculation for large gap materials	04-8279
T-12 T-12	Batista, Enrique Martin, Richard	On the Excited States Involved in the Luminescent Probe [Ru(bpy)2dppz]2+	04-8280
T-12	Hanson, David	Micromechanical modeling progress	04-8281
T-16	Möller, Peter	Nuclear Ground-State Masses and Nuclear Shape Isomerism	04-8303
T-16	Sierk, Arnold	Effect of Wigner Energy on Fission Barriers	04-8304
T-3 T-1 T-3	Addessio, Francis Clements, Brad Williams, Todd	A Model For Heterogeneous Materials Including Phase Transformations / Journal of Applied Physics	04-8313
T-6 T-6 CCS-4 T-6	Socrates, Aristotle Blaes, Omer Hungerford, Aimee Fryer, Christopher	The Neutrino Bubble Instability: A Mechanism for Generating Pulsar Kicks	04-8335
T-15 T-15	Markidis, Stefano Lapenta, Giovanni	Plasma Simulations on a Hybrid Computational Grid	04-8341
T-12 T-14	Chitanvis, Shirish Welch, Paul	Influence of supercoiling on base-pair disruption	04-8345
T-3 T-3 MST-8 MST-8 CNLS	Bronkhorst, Curt Maudlin, Paul Cerreta, Ellen Mason, Thomas Gray, George	A Polycrystal Plasticity Examination of Localization in Tantalum Tophat Geometry Samples	04-8361
T-10 T-10	Garcia, Angel Gnanakaran, S.	Simulations of the Pressure and Temperature Unfolding of an Alpha Helical Peptide	04-8362
T-10 T-10 T-10 T-10	Ribeiro, Ruy Perelson, Alan Talal, Andrew Powers, Kimberly	Hepatitis C Virus Kinetics and Pegylated Interferon-a Pharmacokinetics in HCV/Human Immunodeficiency Virus (HIV-1) Infected Patients	04-8400
T-16	Steiner, Andrew	Isospin Asymmetry in Nuclei, Neutron Stars, and Heavy-Ion Collisions	04-8403
T-16	Litvinov, Yu. *et al* Madland, David	Isospin Dependence in Odd-Even Staggering of Nuclear Binding Energies	04-8404
T-14	Kober, E. *et al*	Thermal decomposition of polydimethylsiloxane polymer	04-8444
T-10	Perelson, Alan *et al*	A Theory of T Cell Receptor Specificity	04-8445
X-4 T-3 ESA-WR X-7	Potocki, Mark Canfield, Thomas Prime, Michael Zocher, Marvin	Results From The TEPLA Material Model in The Shavano Project	04-8474
T-6 T-6	Williams, Bart Timmes, Francis Fryer, Chris	Understanding compact object formation and natal kicks I. calculation methods and the case of GRO J1655-40	04-8478
T-6 T-6	Heger, Alexander Woosley, Stan Fryer, Christopher Baraffe, Isabelle	Evolution and Fate of the First Stars	04-8479
T-16	Goldman, Terrance	Non-Nuclear Multiquark States Diabaryons and Pentaquarks from a Successful Nuclear Quark Model	04-8513

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LANL Group	Author(s)	Title	LAUR No.
T-8	Shirman, Yuri	Chiral gauge theories and deconstruction of ADS	04-8519
T-10 T-10	Perelson, Alan Jones, Laura	Opportunistic Infection as a cause of Transient Viremia in Chronically Infected HIV Patients Under Treatment With HAART	04-8520
T-1 T-1 T-1 T-1 T-1	Holmstrom, Erik Niklasson, Anders Bock, Nicolas Rudin, Sven Wills, John	Finite size effects on multilayer relaxations	04-8527
T-1 T-1	Lizarraga, Raquel Wills, John *et al*	On the noncollinear magnetic structure of UO2	04-8528
T-1	Plohr, Jee-Yeon	A model for heterogeneous materials undergoing phase transitions	04-8529
T-1 T-1	Bock, Nicolas Wallace, Duane Coffey, Derot	A study of the cross-over temperature between the adjabatic and non-adiabatic contributions to the electron - ryon on free energy on NA, K, AL, PB	04-8530
X-7 T-13	Plohr, Jee-Yeon Plohr, Bradley	Linearized richtmyer-meshkov flow for elastic materials	04-8536
T-14	Sewell, Thomas	White Paper Pertaining to Plasticity in Organic Crystals	04-8585
T-3	Dukowicz, John	Hypop (Hybrid Vertical Coordinate Version of Pop) Summary Current C-Grid Version	04-8586
T-10 T-10	Ribeiro, Ruy Perelson, Alan *et al*	Viral Kinetics in Acute SIV/SHIV Infection: Estimation of the Basic Reproductive Ratio (R0)	04-8589
T-6	Holz, Daniel Hughes, Scott	Using gravitational-wave standard sirens	04-8603
T-6	Holz, Daniel Linder, Eric	Safety in Numbers: Gravitational lensing degradation of the luminosity distance-redshift relation	04-8604
T-10	Leitner, T. *et al*	HIV-1 Requires V3-Loop Glycoslation for CCR5 Binding	04-8605
T-10	Bruno, William	Manifest Interconductance Rank Form: A Canonical Topology with Minimal Reactions for ION Channel Model Identification	04-8607
T-3 T-3 T-3	Hunke, Elizabeth Holland, Marika Maltrud, Mathew Lipscomb, William	The Ocean's Influence on Arctic Sea Ice Thickness, 1978-2002/Journal of Climate	04-8634
T-1 X-7	Burakovsky, L. Preston, Dean	Generalized Guinan-Steinberg formula for the shear modulus at all pressures	04-8643
T-7 CNLS	Hagberg, Aric Marts, Bradley Meron, Ehud Lin, Anna	Bloch-front turbulence in a periodically forced belousov-zhabothinsky reaction	04-8653
T-7	Chowell-Puente, G. *et al*	Epidemiological and clinical characteristics of scorpionism by centruroides limpidus in an endemic area	04-8654
T-7 T-7	Maclachlan, Scott Moulton, John	Multilevel upscaling of heterogeneous media	04-8655
T-7 T-7	Maclachlan, Scott Moulton, John	Multilevel upscaling through variational coarsening	04-8656
T-16 X-5 X-5	Sierk, Arnold Mashnik, Stepan Prael, Richard *et al*	Evaporation and Fission Model for Medical Isotope Production and Other Applications	04-8658
T-11 T-6	Blagoev, Krastan Mihaila, B. *et al*	MRI of neural currents: numerical study	04-8681
T-13 T-13	Smith, Derek Lapedes, Alan *et al*	Antigeic cartography, and the influenza archipelago	04-8682
T-11	Gubernatis, James	Marshall rosenbluth and the metropolis algorithm	04-8683
T-10 T-10	Goldstein, Byron Coombs, D. *et al*	Effects of pMHC Density and TCR Dwell Time on T Cell Activation	04-8684

LANL Group	Author(s)	Title	LAUR No.
T-3	Baxter, Sarah Williams, Todd	A stochastic micromechanical basis for the charac-terization of random heterogeneous materials	04-8690
T-8	Okuniewicz, I. McKellar, Bruce Friedland, A.	Construction and analysis of a many-body neutrino model	04-8707
T-12 T-12 T-12	Thomson, Robb Koslowski, Marisol Lesar, Richard	The complementary roles of noise and energy in metallic deformation	04-8708
T-1 T-1	Bock, Nicolas Wallace, Duane Coffey, Dermot	Non-adiabatic contributions to the free energy from the electron-phonon interaction for Na, K, Al, and Pb	04-8709
T-12	Prodan, Ionut Martin, Richard Scueria, Gustavo	Hybrid density functional studies of bulk actinide oxides	04-8710
T-1	Niklasson, Anders	On the relation between the electronic structure between thin films and bulk alloys	04-8761
T-11 T-1 T-11	Schnell, Ilan Rudin, Sven Albers, Robert	Mechanical and thermodynamic properties of solid zirconium using a tight-binding	04-8762
T-11	Vorontsov, A.*et al*	The FFLO state in two-dimensional D-wave superconductors	04-8764
T-11 T-11 T-1 T-1 CNLS	Graf, Matthias Lookman, Turab Wills, John Wallace, Duane Lashley, Jason	Strong electron-phonon coupling in delta-phase stabilized Pu	04-8765
T-3	Williams, Todd	Deterministic to Stochastic Modeling of the History-Dependent Behavior of Composite	04-8766
T-3	Johnson, Norman	Moderating Strategic Surprise- Through the Eyes of Protecting National Public Health	04-8767
T-6	Mihaila, Bogdan	Density and spin response functions in ultracold fermionic gases	04-8823
T-6	Mihaila, Bogdan	Real-time dynamics of phase transitions	04-8824
CNLS T-12	Reichhardt, Charles Reichhardt, Cynthia	Ordering and melthing in colloidal molecule crystal mixtures	04-8826
CNLS CNLS	Redner, Sidney Antal, Tibor	Excited Random Walk In One Dimension	04-8827
T-6	Heger, Alexander Woosley, Stan Baraffe, Isabelle	Final Stages of the most massive stars	04-8839
T-7	Loubere, Raphael	First Steps Into Ale Inc(Ubator).A 2d Arbitrary-Lagrangian-Eulerian Code On General Polygonal Mesh For Compressible Flows Version 1.0.0	04-8840
T-1 T-1	Wallace, Duane Lorenzi Venneri, G.	Vibration-transit theory of the intermediate scattering function of monatomic glass	04-8859
T-1 T-1 T-1	Wallace, Duane Lorenzi Venneri, G. Chisolm, Eric	Time correlation functions in vibration-transit theory of liquid dynamics	04-8860
CNLS CNLS	Sood, Vishal Redner, Sidney	First passage properties of the erdos-renyi random graph	04-8884
CNLS CNLS	Redner, Sidney Chen, Pu	Majority Rule Dynamics In Finite Dimensions	04-8885
CNLS	Redner, Sidney	Citation Statistics From More Than a Century of Physical Review	04-8886
CNLS CNLS	Redner, Sidney Vazquez, Federico	Absorbing multicultural states in the axelrod model	04-8888

Appendix B–Los Alamos Unlimited Releases (LA-URs)

LANL Group	Author(s)	Title	LAUR No.
T-11 T-11 T-11 T-DO	Zhu, Jian-Xin Rasmussen, Kim Balatsky, A. Bishop, Alan	Electronic structure in the Peyrard-Bishop-Holstein model for DNA	04-8889
X-5 T-16	Mashnik, Stepan Sierk, Arnold	A Review of Models and Codes for Spallation Sources, Accelerator Driven systems, and Other Applications	04-8891
T-16	Bar, Oliver Claude, Bernard Rupak, Gautam Shoresh, Noam	Staggered Chiral Perturbation Theory with Ginsparg-Wilson Valence Quarks	04-8892
T-15 T-15	Lapenta, Giovanni Markidis, Stefano	Plug and Play approach to validation and verification of particle-based algorithms	04-8905
T-7 CNLS	Loubere, Raphael Caramana, Edward	The Force/Work Differencing of Exceptional Points in the Discrete, Compatible Formulation of Lagrangian Hydrodynamics	04-8906
CNLS CNLS	Sood, Vishal Redner, Sidney	Voter model on a heterogeneous graph	04-8914
T-11 T-11 T-11	Saxena, Avadh Lookman, Turab Albers, Robert	Landau free energy for structural phase transitions in Pu	04-8925
T-3 T-3	Zhang, Duan Ma, Xia	Evolution of Contact Statistics in Dense Granular Material	04-8932
T-3 T-3	Lipscomb, William Hunke, E. *et al*	Comparison of model- and satellite-derived arctic sea ice thickness	04-8934
T-16	Möller, Peter	Global, Microscopic Nuclear-Structure Calculations in a Unified Model	04-8941
T-12	Holian, Brad	Molecular dynamics comes of age for shockwave research	04-8949
T-3 MST-8 MST-6 MST-6 MST-8	Beyerlein, Irene Li, Saiyi Necker, Carl Alexander, David Tome, Carlos	Non-Uniform Microstructure and Texture Evolution During Equal Channel Angular Extrusion/Philosophical Magazine	04-8950
T-14 T-14	Brydon, Andrew Bardenhagen, Scott Miller, Erin Seidler, Gerald	Simulation of the Denification of Real Open-celled Foam Microstructure	04-8962
T-15	Finn, John *et al*	Noise Stabilized Random Attractor	04-8989
T-3	Schraad, Mark	A Stochastic Constitutive Law and Two-Field Approach for Modeling the Mechanical Response of Cellular Materials	04-8990
T-15 T-15	Lapenta, Giovanni Ju, Jianwei	Predictor-corrector Preconditioned newton-Krylov Method for Cavity Flow	04-8993
T-10	Iberia, Ruy	Impact of Thymectomy on the Peripheral T-cell Pool in Rhesus Macaque Before and After Infection with Simian Immunodeficiency Virus	04-8994
T-16	Möller, Peter	Nuclear-Structure Calculations for Basic Research and Society	04-9000
T-3 T-3 T-14 ESA-WR	Zuo, Qiuhai Addessio, Francis Dienes, John Lewis, Matthew	A Continuum Damage Model for Brittle Materials Based on the Dominant Crack/International Journal of Solids and Structures	04-9030
T-10 T-10	Sanbonmatsu, K. Joseph, Simpson Tung, C.-S.	Simulating Movement of Cognate TRNA in the Ribosome	04-9040
T-15 T-15	Lapenta, Giovanni Ricci, Paolo *et al*	Kinetic Simulations of x-line Propagation in 3D Reconnection	04-9041
T-10 T-10 T-10 T-10	Faeder, James Blinov, Mikhail Hlavacek, William Goldstein, Byron	Investigating the Role of Complex Formation in Immunoreceptor Signaling Using Mathematical Modeling	04-9042

LANL Group	Author(s)	Title	LAUR No.
T-15	Glasser, Alan	The SEL Fluid Simulation Code	04-9043
T-12	Sergei, Tretiak	Theoretical study of solvent effects on electronic structure and spectra of paracyclophane chromophores	04-9049
T-10 T-10	Korber, Bette Szinger, J. *et al*	Dominant Influence of HLA-B Mediating the Potential Co-evolution of HIV and HLA	04-9051
T-6	Luu, Thomas	Bloch-Horowitz Schemes	04-9078
T-15 T-15	Finn, John Chacon, Luis	Volume Preserving Integrators for Solenoidal Fields on a Grid	04-9082
T-10	Torney, David *et al*	Subwords in Reverse Complement Order	04-9083

Appendix C

Los Alamos Controlled Publications (LA-CPs)

Appendix C–Los Alamos Controlled Publications (LA-CPs)

Division staff members wrote a total of 22 classified reports and papers in 2004. The list does not show titles because they may be classified.

LA-CP Number	Author	Group
LA-CP-04-0268	Alan R. Bishop	T-DO
LA-CP-04-0003	James D. Johnson	T-1
LA-CP-04-0265	James D. Johnson Carl W. Greeff	T-1 T-1
LA-CP-04-0269	John M. Wills	T-1
LA-CP-04-0307	Paul J. Maudlin	T-3
LA-CP-04-0362	Francis L. Addessio	T-3
LA-CP-04-0527	Qiuhai K. Zuo	T-3
LA-CP-04-0801	Thomas R. Canfield	T-3
LA-CP-04-0170	Anna C. Hayes Gerard Jungman Johndale Solem	T-6 T-6 T-DO
LA-CP-04-0557	Anna C. Hayes	T-6
LA-CP-04-0774	Anna C. Hayes Gerald Hale	T-6 T-16
LA-CP-04-0239	David H. Hanson	T-12
LA-CP-04-0532	David H. Sharp	T-13
LA-CP-04-0159	Edward Kober Ralph Menikoff	T-14 T-14
LA-CP-04-0264	Edward Kober	T-14
LA-CP-04-0319	Milton S. Shaw	T-14
LA-CP-04-0038	Patrick Talou Mark B. Chadwick	T-16 T-16
LA-CP-04-0157	Mark B. Chadwick	T-16
LA-CP-04-0158	Mark B. Chadwick	T-16
LA-CP-04-0308	Mark B. Chadwick	T-16
LA-CP-04-0856	Mark B. Chadwick	T-16
LA-CP-04-0859	David G. Madland	T-16

Appendix D

Presentations and Invited Talks

Appendix D–Presentations and Invited Talks

Group	Name	Title	Location	Month (2004)
T-DO	Bishop	Nanoscale Heterogeneity and Quantum Phenomena in Complex Matter	International Conference, Rome, Italy	September
T-DO	Bishop	Solid State to Biological Physics	International Conference, Dubrovnik, Croatia	June
T-DO	Bishop	Dynamics Energy Landscapes and Functional Systems	International Workshop, Santa Fe, NM	April
T-DO	Bishop	Unconventional Superconductivity	International Workshop, San Diego, CA	January
T-DO	Chen	Lab Modeling Projects	LANL	October
T-DO	Chen	Lab Modeling Projects	LANL	April
T-DO	Dalvit	Quantum Dynamics, Measurement And Decoherence In Bose-Einstein Condensates	Physics Department, Louisiana State University	
T-DO	Dalvit	Bose-Einstein condensate physics: dynamics and applications	Quantum Institute Workshop	
T-DO	Dalvit	Dynamical Casimir effect via time-dependent conductivity	International Workshop on Dynamical Casimir Effect	
T-DO	Milonni	Quantum Optics Seminar	University of Rochester	March
T-DO	Milonni	Center for Nonlinear Studies Colloquium	Los Alamos National Laboratory	August
T-DO	Milonni	Department of Physics Colloquium	University of Oklahoma	February
T-DO	Milonni	Three lectures	Hong Kong Advanced Study Institute	December
T-DO	Milonni	Welch Week Lecture	University of Toronto	April
T-DO	Paz	Qubits in Phase Space	Invited talk, International conference Quantum Optics II	December
T-DO	Paz	Decoherence in Quantum Computers	4th Canadian Summer School on Quantum Information	July
T-DO	Paz	Decoherence and Quantum Information	72nd Winter School on Theoretical Physics	February
T-DO	Strottman	Level Structure and Scattering in Light Nuclei	DNP Meeting	October
T-DO	Younger	Special Operations and the CBRNE Threat	The Annual Conference of US Special Operations Command	December
T-DO	Younger	Technology and the Fight Against World Terrorism	NMSU/LANL MOU Workshop	December
T-DO	Younger	Sumerians Among Us	University of Museum, University of Philadelphia	September
T-DO	Younger	Simulating the Dynamics of Societies	University of New Mexico	December
T-DO	Younger	Technology and the Fight Against World Terrorism	TechEnterprise 2004 Conference	August
T-DO	Younger	Some Issues Relating the Future International Security	Los Alamos Summer School	July
T-DO	Younger	Simulating the Dynamics of Societies	Los Alamos Summer School	June
T-DO	Younger	Diversity as a Tool in the Flight Against Terrorism	LANL Asian Pacific Islander Diversity Lecture	May
T-DO	Younger	A Retrospective of World Terror Issue	The Biological Threat Reduction	March
T-DO	Zurek	PANEL: The Nature of Quantum Mechanics	Kavli Institute for Theoretical Physics	October
T-DO	Zurek	New Frontiers in Quantum Theory and Measurement	University of Ulm	September
T-DO	Zurek	Bose-Einstein Condensation in Disordered Systems	Disordered Ultracold Atomic Gases	June
T-DO	Zurek	Time in Quantum Mechanics	University de la Laguna	June
T-DO	Zurek	Dynamics of quantum phase transitions	Quantum Information Processing with Atoms, Ions, and Photons	March

Group	Name	Title	Location	Month (2004)
T-DO	Zurek	Quantum Coherence in Matter: From Quarks to Solids	Internationale Universitätswochen für Theoretische Physik	March
T-1	Burakovsky	Unified Analytic Model of the Gruneisen Parameter, Melting Temperature And Shear Modulus	AGU Fall Meeting, San Francisco, CA	December
T-1	Burakovsky	Melting Curves In The Mean-Field Potential Approach: Gold As An Example	Gordon Research Conference, Meriden, NH	June
T-1	Clements	Polymer Behavior Under Dynamic Loading	TCG-1, SNL	November
T-1	Clements	Phase Transitions in Dynamically Loaded Composites	TCG-I, LLNL	October
T-1	Clements	Polymer Behavior Under Dynamic Loading	TCG-1, SNL	October
T-1	Clements	Polymer Behavior Under Dynamic Loading	TCG-1, SNL	April
T-1	Clements	Continuum Models And Associated Experiments For Polymeric Systems Under Dynamic Loads	ARL Seminar, Aberdeen, MD	February
T-1	Crockett	An Introduction to Equation of State and Shock Physics Research	Invited talk at UND	October
T-1	George	Effect of Anisotropic Interfacial Energy on Grain Boundary Distribution during Grain Growth	Precrystallization and Grain Growth	August
T-1	Greeff	Modeling Dynamic Phase Transitions in Zr	JOWOG 32, Aldermaston, UK	November
T-1	Holmstrom	Multilayer Relaxations and the Superposition Principle	T-1 Seminar Series	September
T-1	Johnson	Density Functional Theory Calculations on EOS and Phase Stability of Bc	JOWOG 32, Aldermaston, UK	November
T-1	Kuprat	Modeling Microstructure Evolution in 3D using Anisotropic Energy and Mobility	Materials Theory Seminar, LANL	May
T-1	Kuprat	Moving Mesh Methods And Applications	Dept of Eng. Sci. and Mechanics, Penn State	April
T-1	Mas	SMIS design and preliminary simulations, parallel speed up on EPIC, and direct numerical simulation	IM Hazards Meeting	November
T-1	Mas	Modeling and Simulation for the Munitions and Warhead Fragmentation Impact and Response	TCG-1 review	October
T-1	Mas	Macro to Meso length studies of PBX 9501 for the Thermal and Loading Dynamics of Energetic Materials	TCG-1 review	October
T-1	Mas	Current Modeling Capabilities in T-1	ASCI review for Project Leader	September
T-1	Niklasson	Ab initio response theory for nanomaterials	Workshop, Linkoping University, Sweden	December
T-1	Niklasson	Quantum perturbation theory in O(N)	Physics Department, Uppsala University, Sweden	December
T-1	Niklasson	Quantum perturbation theory in O(N)	Royal Institute of Technology, Stockholm, Sweden	December
T-1	Niklasson	Linear scaling response theory	South Western Theoretical Chemistry Conference, Galveston	October
T-1	Niklasson	Ab initio response theory for nanomaterials	University of Houston	October
T-1	Niklasson	Quantum Perturbation Theory in O(N)	LANL	October
T-1	Niklasson	Ab initio response theory for nanomaterials	Workshop, Semiclassical Molecular Dynamics of Nanostructures	June
T-1	Niklasson	Ab initio response theory of nanomaterials	California Institute of Technology	October
T-1	Niklasson	Reduced complexity theory for nanomaterials	University of California	April
T-1	Niklasson	N-Scaling Quantum Perturbation	Materials Theory Seminar Series	February

Appendix D–Presentations and Invited Talks

Group	Name	Title	Location	Month (2004)
T-1	Plohr	Linearized Richtmyer-Meshkov Flow for Elastic Materials	Turbulence-Mixing Meeting	August
T-1	Plohr	Linearized Richtmyer-Meshkov Flow for Elastic Materials	Conference on Analysis, Modeling and Computation of PDE and Multiphase Flow	August
T-1	Rudin	First Principles Calculations of the Thermodynamics of ZrN and U	MMSNF-3	November
T-1	Rudin	Density Functional Theory Calculations on EOS and Phase Stability of Beryllium	JOWOG 32	November
T-1	Rudin	Thermodynamics of Solids from First Principles	CalTech ASCI/ASAP	February
T-1	Wallace	Vibration-Transit Theory Of Monatomic Liquid Dynamics	T-1 Seminar	December
T-3	Addessio	Modeling Composite Materials: A Review of LANL Programs	TCG-I, LLNL	October
T-3	Addessio	Materials Modeling with Application to the Actinides	Campaign 2 Review, Livermore, CA	January
T-3	Addessio	Modeling Zirconium Explosively Formed Projectiles	TCGI Meeting Huntsville, AL	April
T-3	Beyerlein	Substructure Hardening Model for Strain Path Changes in Copper	DOE BES Program Review	November
T-3	Beyerlein	Heterogeneity In Texture Development In Single Pass Equal Channel Angular Extrusion	TMS Society 2004 Charlotte, NC	March
T-3	Beyerlein	Three Dimensional Modeling of Plastic Deformation Flow During ECAP	TMS Society 2004 Charlotte, NC	March
T-3	Beyerlein	Mechanical Properties Of High Purity Copper Processed By Equal Channel Angular Extrusion	TMS Society 2004 Charlotte, NC	March
T-3	Canfield	Results from the TEPLA Material Model in the Shavano Project	NECDC 2004, Livermore, CA	October
T-3	Dukowicz	Improved Density Coordinates of the Potential Density Type for Layer Models	Layered Ocean Model Workshop, Miami, FL	February
T-3	Eggert	Computing Surface Water Hydraulics . . . Parallel Computing Clusters	Seminar at National Center for Atmospheric Research, Boulder, CO	February
T-3	Eggert	A Continental Scale River Modeling Framework . . . Hydraulic Realism	NCAR CCSM Workshop, Santa Fe, NM	July
T-3	Eggert	A Continental Scale River Modeling Framework . . . Hydraulic Realism	NCAR CCSM Workshop, Santa Fe, NM	July
T-3	Hunke	Ice & Ocean Modeling Toward Understanding Global Climate	Los Alamos Women in Science Lunch Talk	June
T-3	Hunke	POP and CICE in the Arctic Ocean Model Intercomparison Project	T-3 Seminar	December
T-3	Hunke	POP and CICE in the Arctic Ocean Model Intercomparison Project	Climate Change Prediction Program Meeting, Seattle WA	October
T-3	Hunke	An Eddy-Admitting Global Ice-Ocean Simulation	Invited talk at the University of Chicago	February
T-3	Hunke	AOMIP: 2 Runs, A Lesson, and 2 Questions	AOMIP Workshop #7 Geophysical Fluid Dynamics Laboratory Princeton, NJ	June
T-3	Johnson	Moderating Strategic Surprise - Through the Eyes of Protecting National Public Health	Avoiding Strategic Surprise: Lessons from Risk Management & Assessment, NYC, NY	December
T-3	Johnson	Diversity: A Weapon of Mass Construction	UCSF Student Enrichment Seminar Series	October

Group	Name	Title	Location	Month (2004)
T-3	Johnson	LANL Chemical & Biological Threat Reduction Program	Visit of Representatives of the Department of National Defense, Government of Canada	April
T-3	Johnson	Los Alamos Homeland Security Programs and Highlights	Invited talk, Remote Sensing Lab, Nellis Air Force Base, NV	April
T-3	Jones	Computational Requirements for Future Climate Simulations	Los Alamos Computer Science Institute Workshop, Santa Fe, NM	October
T-3	Jones	Status and Progress of the Climate, Ocean, and Sea Ice Modeling (COSIM) Project	Climate Change Prediction Program Meeting, Seattle, WA	October
T-3	Jones	Climate, Ocean, and Sea Ice Modeling	Supercomputing 2004 (SC04), Pittsburgh, PA	November
T-3	Jones	Conservative Regridding for Geodessic Climate Models	Geodesic Climate Modeling, Boulder, CO	February
T-3	Jones	Data Requirement For Climate Modeling	DOE/SC Data Mgmt. Workshop at SLAC Menlo Park, CA	March
T-3	Jones	Collaborative Development of the Community Climate System for Terascale Computers	DOE SciDAC PI Meeting, Charleston, SC	March
T-3	Kashiwa	Status of Closure Modeling for Metal-Loaded HE Using DNS	DoD/DOE TCG-IV Warhead Technology Meeting	November
T-3	Kashiwa	A Study of Two-Body Forces in Fluidization	3rd Int'l Conf. on Two Phase Flow Modeling & Experimentation, Italy	September
T-3	Kashiwa	Toward a General Theory for Multiphase Turbulence	DOE/EE/OIT Review Mtg. & AICHE Spring Mtg., New Orleans	April
T-3	Kashiwa	Multifield Closure Modeling for Metal-loaded High Explosives	Warheads & Ballistics Classified Symposium, Monterey, CA	August
T-3	Knoll	On Time Integration Methods and Errors for ASCI Applications	Methods for Comp. Physics, Monterey, CA	March
T-3	Lipscomb	An Incremental Remapping Transport Scheme on a Spherical Geodesic Grid	DOE Cooperative Agreement Meeting, Bethesda, MD	August
T-3	Lipscomb	Comparison of Model- and Satellite-Derived Arctic Sea Ice Thickness	American Geophysical Union Fall Meeting, San Francisco, CA	December
T-3	Lipscomb	Sea Ice Model Development: Toward CICE 4 and CSIM 6	NCAR Community Climate System Model Annual Meeting	July
T-3	Lipscomb	Sea Ice Progress Report	DOE SciDAC Mtg., Boulder, CO	May
T-3	Ma	Enduring Contracts in Dense Granular Material	57th Annual Mtg. of the Division of Fluid Dynamics	November
T-3	Maltrud	The Functional Form of the Ocean . . . Interior Tracer Distributions	AGU Ocean Sciences, Portland, OR	January
T-3	Maltrud	Transit Time Distributions in a Global Ocean Circulation Model	AGU Ocean Sciences, Portland, OR	January
T-3	Maudlin	Tentalum EFP Test Series: Experiments and Analysis	TCG-I Review Meeting, Redstone Arsenal, AL	April
T-3	Mousseau	Transitioning from Interpretive to Predictive in Thermal Hydraulic Codes	Best Estimate Methods in Nuclear Installations Safety, Wash., D.C.	November
T-3	Mousseau	Modern Time Integration Methods Applied to the Thermal Hydraulic Equations	Invited Talk at UC Santa Barbara	September
T-3	Mousseau	A Hybrid Solution Method for the Two-Phase Fluid Flow Equations	12th Int'l Congress on Nuclear Engineering, Arlington, VA	April
T-3	Mousseau	Nonlinear Implicitly Balanced Methods for Nonequillibrium Radiation Diffusion	SIAM Annual Meeting, Portland, OR	July
T-3	Mousseau	A Comparison Between an Implicitly Balanced Solution and a Linearized and Operator Split Solution of the Thermal Hydraulic Equations	Eighth Copper Mountain Conference on Interactive Methods, Copper Mountain, CO	March
T-3	Tonks	Geometric Tolerance Method for Compliant Assembly Tolerance Analysis	ASME DETC	September

Appendix D–Presentations and Invited Talks

Group	Name	Title	Location	Month (2004)
T-3	Torres	KIVA-4 Development	DOE National Laboratory Advanced Combustion Engine Merit Review & Peer Evaluation	May
T-3	Torres	Unstructured KIVA	Advanced Engine Combustion Meeting, Livermore, CA	January
T-3	Torres	Unstructured KIVA	Int'l Multi-Dimensional Engine Modeling Users' Group Mtg., Detroit, MI	March
T-3	Torres	KIVA-4 Development	Advanced Engine Combustion Meeting, Detroit, MI	June
T-3	Vanderheyden	Modeling for IED Fragment Capture	Teleconference with US DARPA, Los Alamos NM	April
T-3	Vanderheyden	T-3 Overview: Multiphase Flow	TST Meeting & Workshop, Urbana, IL	May
T-3	Vanderheyden	Modeling for IED Fragment Capture	Teleconference with US DARPA, Los Alamos NM	April
T-3	Vanderheyden	Novel Algorithms for Agent Defeat, Non-Ideal Airblast Simulation and HANE	JOWOG-43/NWEUG Users Group Meeting- Aldermaston, UK	May
T-3	Vanderheyden	Fluid Dynamics Group (T-3) Capabilities and Highlights	STTR & Modeling & Estimating Building Damage Meetings, US Army Research Laboratory, Aberdeen	March
T-3	Vanderheyden	Modeling Friction Initiation of HE	Nuclear Explosives Safety Workshop, SNL	May
T-3	Vanderheyden	Unstructured KIVA	TST Meeting & Workshop, Urbana, IL	May
T-3	Williams	High Explosives Constitutive Modeling	PMC04 LANL Conference	July
T-3	Williams	Physics-Based Modeling of Composite Materials	TMS Conference 2004, New Orleans, LA	September
T-3	Williams	A Stochastic Framework for the Micromechanical Analysis of Composites	Probabilistic Mechanics Conference, Albuquerque, NM	July
T-3	Zhang	Particle-In-Cell Method in Multiphase Flow Simulations	57th Annual Meeting of the Division of Fluid Dynamics, Seattle WA	November
T-3	Zhang	Local Grain-Grain Interactions in Granular Explosive	EMR Review Meeting at LLNL & US/UK	November
T-3	Zhang	Particle-in-Cell Method in Multiphase Flow Simulations	International Union of Theoretical and Applied Mechanics, Argonne, IL	October
T-3	Zhang	Constitutive Behavior of Particle-Polymer Binder Composite	International Conference on Multiphase Flow, Yokohama, JAPAN	May
T-3	Zhang	Enduring Contacts and Dense Granular Flows	Gordon Conference in Granular & Granular-Fluid Flow, Colby College, Waterville, ME	June
T-3	Zhang	Enduring Contacts and Dense Granular Flows	International Conference on Multiphase Flow, Yokohama, JAPAN	May
T-3	Zou	Particle-in-Cell Method in Multiphase Flow Simulations	57th Annual Meeting of the Division of Fluid Dynamics, Seattle WA	November
T-3	Zou	Modeling Friction Initiation of Solid Explosives	57th Annual Meeting of the Division of Fluid Dynamics, Seattle WA	November
T-3	Zou	Multiphase Flow Simulation of Non-Shock Initiation	Energetic Materials Review	November

Group	Name	Title	Location	Month (2004)
T-3	Zou	Multiphase Flow Simulation of Ignition of Solid Explosive	5th International Conf. on Multiphase Flow, Japan	June
T-3	Zuo	Embedded Element for Strain Localization	Campaign 4.2 Workshop, Los Alamos, NM	April
T-3	Zuo	Modeling Fracture and Damage in Ceramics Via Statistical Crack Mechanics	Caltech ASCI Program Site Visit, Los Alamos, NM	February
T-4	Colgan	Comparison of Theory And Experiment For Dielectronic Recombination of Fe Atomic Ions	SESAPS, Oak Ridge, TN	November
T-4	Colgan	R-Matrix-Floquet Theory Of Molecular Multiphoton Processes	ECAMP8, Rennes, France	July
T-4	Colgan	Lattice Calculations of the Photoionization of Li	DAMOP 2004, Tucson, AZ	May
T-4	Colgan	Ionization Cross Section Calculations Of Both Light And Heavy Species For ITER Relevant Studies	APiP Conference, Santa Fe, NM	April
T-4	Colgan	Dielectronic Recombination Calculations For Dynamic Finite Density Plasmas	APiP Conference, Santa Fe, NM	April
T-4	Colgan	Simulations Of Ultracold Plasmas And Cold Rydberg Gases	APiP Conference, Santa Fe, NM	April
T-4	Collins	Quantum Molecular Dynamics Simulations of Warm, Dense Matter	14th APS Topical Conference on Atomic Processes in Plasmas	April
T-4	Hakel	Magnetic-Sublevel Atomic Kinetics Modeling for Line Polarization Spectroscopy	4th International Symposium on Plasma Polarization Spectroscopy	February
T-4	Hu	Imaging Molecular Structures with Few-Cycle Pulses	APS DAMOP Meeting, Tucson, Arizona	May
T-4	Hu	The Inverse ATI Process: Electron-Ion Recombinations In Intense Ultrashort Laser Pulses	APS DAMOP Meeting, Tucson, Arizona	May
T-4	Hu	Phase-Control of Intense, Few-cycle Laser-assisted Recombination	14th APS Topical Conference on Atomic Processes in Plasmas	April
T-4	James	Quantum Algorithms for Small Quantum Computers	University of Innsbruck, Austria	November
T-4	James	Quantum Teleportation	Quantum Optics Seminar, Dept. of Physics and Astronomy, University of Rochester, Rochester, NY	October
T-4	James	Correlation-induced spectral (and other) changes	Frontiers in Optics/OSA Annual Mtg., Invited Talk, Rochester, NY	October
T-4	James	Quantum Teleportation	Oklahoma State University, Physics Colloquium	September
T-4	James	Quantum Teleportation	Quantum Enabled Science and Technology Summer Retreat	August
T-4	James	Quantum State and Process Tomography	University of Innsbruck, Austria	May
T-4	James	Effective Hamiltonians Theory and Its application to Trapped Ion Quantum Computers	University of Innsbruck, Austria	May
T-4	James	Quantum State and Process Tomography	Imperial College	April
T-4	James	Quantum State and Process Tomography	University of Cambridge	April
T-4	James	Quantum State and Process Tomography	University of Oxford	April
T-4	James	Quantum State and Process Tomography	University of Bristol	April
T-4	Karkuszewski	Depletion and evolving condensates	Quantum Lunch Seminar	December
T-4	Karkuszewski	Spectral analysis of short time signals	DAMOP 2004, Tucson, AZ	May
T-4	Kilcrease	Los Alamos Opacities: Transition from LEDCOP to ATOMIC	14th APS Topical Conference on Atomic Processes in Plasmas	April

Appendix D–Presentations and Invited Talks

Group	Name	Title	Location	Month (2004)
T-4	Kilcrease	CHEMEOS: A New Chemical-Picture-Based Model for Plasma Equation-of-State Calculations	14th APS Topical Conference on Atomic Processes in Plasmas	April
T-4	Kilcrease	Finite Temperature Random Phase . . . Hot and Dense Plasmas	14th APS Topical Conference on Atomic Processes in Plasmas	April
T-4	Kilcrease	Alignment Creation by Elastic Scattering: A Quantum Treatment	Fourth International Symposium on Plasma Polarization Spectroscopy	February
T-4	Kilcrease	Using Line Shifts as a Spectral Diagnostic	11th Int'l Workshop on Radiative Properties of Hot Dense Matter	November
T-4	Kilcrease	Equation of State, Occupation Probabilities and Opacity Results from the New Los Alamos Opacity Code ATOMIC	11th Int'l Workshop on Radiative Properties of Hot Dense Matter	November
T-4	Magee	Los Alamos Opacities: Transition from LEDCOP to ATOMIC	14th Topical Conference on Atomic Processes in Plasmas, Santa Fe, NM	April
T-4	Ponomarenko	Generating Solitons With A Flash-Light	University of North Carolina	February
T-4	Sherrill	Coupled Electron An Atomic Kinetics Through The Solution . . . X-ray Spectra	Radiative Properties of High Dense Matter, Santa Barbara, CA	November
T-4	Timmermans	Progress On Cold Atom Fermi-Gas Physics And Feshbach Resonances	Mini-workshop at Institute of Nuclear Theory, U. of Washington	November
T-4	Timmermans	The Quest For Atom Trap Fermion Superfluidity, Tales From The Ultra-Low Temperature Frontier	Colloquium at Boston College Physics Department	March
T-4	Timmermans	Feshback Resonance Cold Atom Pairing As Coupled Channel Superfluidity	Santa Barbara Workshop on Quantum Gases	July
T-4	Timmermans	Cold-atom fermion-BEC mixtures: cold atom alchemy	Joint Harvard-ITAMP Colloquium	December
T-6	Cox	Predictions of Periods and Growth Rates for Solar g-Modes	SOHO14-GONG2004 Helio- and Asteroseismology: Towards a Golden Future	July
T-6	Heger	Pulsar Kicks and a Pulsational Analysis of the Cores of Massive Stars	204th AAS Meeting	June
T-6	Heger	Supernovae, Gamma-Ray Bursts, and Stellar Rotation	The Fate of the Most Massive Stars	May
T-6	Heger	Stability of SN Ia progenitors against radial oscillations	12th Workshop Nuclear Astrophysics	March
T-6	Heger	Breaking Gravity Waves: A Mechanism for Nova Enrichment	12th Workshop Nuclear Astrophysics	March
T-6	Heger	The fate of the First Stars	University of Illinois, Urbana-Champain	December
T-6	Heger	Models for Type I X-Ray Bursts	University of Notre Dame	October
T-6	Heger	Massereiche Sterne, Kosmische Explosionen, und die Entstehung der Elemente	Universitaet Heidelberg	October
T-6	Heger	Numerical Models of X-ray Bursts	CalTech	April
T-6	Heger	The Fate of the First Stars	UCSB	April
T-6	Heger	Nucleosynthesis of Pop III Stars	Nuclear Astrophysics XII	March
T-6	Heger	s- and p- Process in Massive Stars	New opportunities and challenges with DANCE Workshop	February
T-6	Heger	Evolution and Nucleo-synthesis of Massive Stars	Colloquium, University of Notre Dame	October
T-6	Heger	Evolution and Fate of the First Stars	Post-Nishinomiya-Yukawa Symposium	November
T-6	Heger	The Evolution and Fate of the First Massive Stars	204th AAS Meeting	June

Group	Name	Title	Location	Month (2004)
T-6	Heger	IMBH Formation from the Evolution of Very Massive Stars	Making Waves with Intermediate-Mass Black Holes	May
T-6	Heger	Flickering Neutron Stars	Nuclear Physics and Astrophysics of Accreting Neutron Stars	April
T-6	Heger	Final Stages of the Most Massive Stars	The Fate of the Most Massive Stars	May
T-6	Herwig	Mixing, Nucleosynthesis, And Stellar Yields Of Intermediate Mass Stars	ESO-Arcetri workshop: Chemical Abundances and Mixing in the Milky Way and its Satellites	September
T-6	Herwig	Evolution And Nucleosynthesis Of AGB Stars	Near- and mid-IR studies in or near the Local Group	April
T-6	Holz	Safety In Numbers	Texas Symposium	December
T-6	Holz	Gravitational-Wave Standard Candles, Gravitational Lensing, And Cosmology	Institut d'Astrophysique de Paris seminar	November
T-6	Holz	Gravitational Lensing Of Standard Candles And Dark Energy	GR17	July
T-6	Holz	Looking through a gravitational lens, darkly	NYU Seminar	February
T-6	Holz	Cosmology	National Academy/Royal Society Symposium	June
T-6	Luu	Electromagnetic Excitation Rates Of Nuclear Isomers In A Hot Dense Plasma	Fall DNP Chicago	October
T-6	Luu	Bloch-Horowitz Schemes	Microscopic Nuclear Structure Theory	October
T-6	Luu	Applying The Bloch-Horowitz Equation To p-Shell Nuclei	Novel Approaches to the Nuclear Many-Body Problem: From Nuclei to Stellar Matter	September
T-6	Mihaila	Variational Approach To Cold Fermionic Atom Superfluidity	Annual APS March Meeting	March
T-6	Mihaila	Analysis Of Np-237 ENDF For The Theoretical Interpretation Of Critical Assembly Experiments	Fall Meeting of the Division of Nuclear Physics	October
T-6	Mihaila	The Origin Of Elements, Life As We Know It, And The Future Of Computational Nuclear Physics	Cal Poly Pomona, Physics Department seminar	May
T-6	Mihaila	Continuum Coupled-Cluster Expansion Approach To Nuclear Structure	Int'l Workshop on Microscopic Approaches to Nuclear Structure Calculations	July
T-6	Mihaila	On two-approaches to the Coupled-Cluster Expansion	INT Workshop	October
T-6	Timmes	Radiation Hydrodynamics In Astrophysics	Transport Methods and Phenomena	July
T-6	Timmes	Radiation Hydrodynamics In Astrophysics	Institute for Nuclear Theory	July
T-6	Timmes	Changing the r-Process Paradigm	Institute For Nuclear Theory	July
T-6	Timmes	Transient Astrophysics at Los Alamos	Earthwatch 2004	November
T-6	Timmes	Nuclear astrophysics with neutron facilities at LANL and RIA	Rare Isotope Accelerator - Theory Working Group	October
T-6	Timmes	Variations in Type Ia Supernova	Chemical Enrichment of the Early Universe	September
T-6	Timmes	Flames	Supernova Theory and Nucleosynthesis	July
T-6	Warren	The Distribution of Dark Matter in the Universe	Proc. of the XXXIXth Rencontres de Moriond	May
T-6	Warren	Reasonably Secure Linux on the Desktop	LANL System Administrators	August
T-6	Warren	Using Fast Parallel N-body Methods to Determine the Mass Function of Dark Matter Halos	UNM Applied Mathematics Colloquium	October

Appendix D–Presentations and Invited Talks

Group	Name	Title	Location	Month (2004)
T-6	Warren	The Halo Mass Function from Simulations	Fundamental Physics from Galaxy Clusters	December
T-6	Warren	Computational Astrophysics	LANL briefing of Ed Barsis on Petaflops Computing	May
T-6	Warren	Halo Bias from N-body Simulations	LANL Cosmology Day	April
T-6	Warren	How Precise are the Mass Distributions derived from N-body Simulations?	The Large-scale Distribution of Mass & Light in the Universe	January
T-7	Berndt	Parameter estimation via risk-based optimization	SIAM Annual Meeting	July
T-7	Berndt	Line and Plane Relaxation in parallel BoxMG	Copper Mountain Conference on Iterative Methods	March
T-7	Chartrand	Muon radiography for threat detection	Montana State University, Physics Colloquium, invited talk	September
T-7	Chartrand	A gradient descent solution to the Monge-Kantorovich problem	UC Berkeley, PDE Seminar, invited talk	October
T-7	Chartrand	A gradient descent solution to the Monge-Kantorovich problem	UCLA, Applied Mathematics Colloquium, invited talk	October
T-7	Chartrand	A gradient descent solution to the Monge-Kantorovich problem	Montana State University, DynaChat	September
T-7	Chartrand	A gradient descent solution to the Monge-Kantorovich problem	Clarkson University, Mathematics Colloquium, invited talk	September
T-7	Chowell-Puente	Mathematical models for Emergent and Re-Emergent Infectious Diseases	Mathematics Seminar	October
T-7	Chowell-Puente	Transmission Dynamics of SARS and the Effects of Public Health Interventions	Mathematical Biology Seminar	March
T-7	Dendy	Alternative RAP	Copper Mountain Iterative Methods Conference	March
T-7	Dyadechko	On the Aulisa-Manservisi-Scardovelli (AMS) marker redistribution method for 2D interface tracking	Hydro Project Seminar, Los Alamos, NM	December
T-7	Dyadechko	Reference Jacobian Rezoning Strategy for Arbitrary Lagrangian-Eulerian Methods on Polyhedral Grids	13th International Meshing Roundtable, Williamsburg, VA	September
T-7	Garimella	MSTK - A Flexible Infrastructure Library for Developing Mesh-based Apps	13th International Meshing Roundtable, Williamsburg, VA	September
T-7	Hagberg	NetworkX: Growing a Python-based Toolbox for Complex Networks	SciPy04, California Institute of Technology, Pasadena, CA	September
T-7	Hagberg	Bloch-Front Turbulence in a Periodically Forced Belousov-Zhabotinsky Reaction	XIV Conf. on Nonequilibrium Stat. Mechanics and Nonlinear Physics, La Serena, Chile	December
T-7	Holm	Soliton dynamics in computational anatomy	Conf. on Mathematics in Brain Imaging, UCLA, Los Angeles, CA	July
T-7	Holm	Lagrangian averaged Navier-Stokes-alpha (LANS-alpha) equations for modeling circulation in turbulence	UK Met Office Colloquium, Exeter, UK	June
T-7	Holm	Weak solution interactions in nonlinear internal waves and in computational anatomy	Invited Lecture, IPAM Summer School on Mathematics of Brain Imaging, UCLA	June
T-7	Holm	Background and recent results for LANS-alpha, the Lagrangian averaged Navier-Stokes alpha model of turbulence	Sub-Grid Scale Turbulence Workshop, Boulder, CO	April
T-7	Holm	Euler-Poincaré Equations, with Applications from Solitons to Turbulence	Imperial College London	January
T-7	Hyman	Good Choices for a Great Career in Sci. Computing	Arizona Mathematics Undergrad Conference	November
T-7	Hyman	Career Opportunities in Applied Math.	St. Olaf College	November

Group	Name	Title	Location	Month (2004)
T-7	Hyman	Good Choices for a Great Career in Scientific Computing	U of Texas, Austin, Texas	November
T-7	Hyman	Multiscale modeling of infectious diseases	U of Texas, Austin, Texas	November
T-7	Hyman	Mathematical Models for the Spread of Epidemics	Center for Combinatorics, Nankai University, Beijing/Tianjin, China	June
T-7	Hyman	Comparing and combining agent based and differential equation models for the spread of epidemics	Institute of Computational Mathematics, Chinese Academy of Sciences No. 55, Beijing, China	June
T-7	Hyman	Using Mathematical Models to Better Understand How Epidemics Spread	Department of Applied Mathematics, College of Science Xi'an Jiaotong University, China	June
T-7	Hyman	Bridging multiple time and space scales in numerical simulations	International Workshop on Wave Propagations, Tsinghua University, Beijing, China	June
T-7	Hyman	Modeling the Spread of Disease on Dynamic Networks	Peking University, Beijing, China	June
T-7	Hyman	Optimal Vaccine Strategies Based on an Agent Based Model for the Spread of Epidemics in Portland	SIAM Annual Meeting, Portland, OR	July
T-7	Hyman	Patch Dynamics for Multiscale Simulations	SIAM Annual Meeting, Portland, OR	July
T-7	Jiang	Ripples and Aggregates of Myxobacteria	Symposium on Biological Systems and Soft Materials: Future Directions in Statistical Physics	March
T-7	Kurien	Helicity and the Kolmogorov Phenomenology of Turbulence	Purdue University, Earth and Atmospheric Sciences Seminar, Invited Speaker	February
T-7	Kurien	Symmetry breaking in turbulent velocity statistic - Rotation and Reflection	Purdue University, Mathematics Seminar, Invited Speaker	February
T-7	Kurien	Symmetry breaking in turbulent velocity statistic - Rotation and Reflection	University of Central Florida, Mathematics Special Colloquium, Invited Speaker	February
T-7	Kurien	Helicity and the Kolmogorov Phenomenology of Turbulence	University of Illinois, Mechanical Engineering Colloquium, Invited Speaker	April
T-7	Kurien	Helicity and the Kolmogorov Phenomenology of Turbulence	Center for Nonlinear Studies Seminar	April
T-7	Kurien	Anomalous scaling of low-order turbulence velocity statistics	Center for Nolinear Studies Seminar	July
T-7	Kurien	Cascade timescales for energy and helicity in isotropic homogeneous turbulence	University of New Mexico, American Mathematical Society Sectional Meeting	October
T-7	Li	Adaptive mesh refinement and its application for MHD	Int'l Workshop on Recent Advance of the Adaptive Method, China	May
T-7	Li	A modern parallel AMR framework for hydrodynamics and magnetohydrodynamcs	Numerical seminar, Los Alamos	July
T-7	Lipnikov	Error-Minimization-Based rezone strategy for ALE methods	8th Copper Mountain Conference, Copper Mountain, CO	April
T-7	Lipnikov	New mimetic discretizations of diffusion-type problems on polygonal meshes	Los Alamos National Laboratory, Los Alamos, NM	May
T-7	Lipnikov	Poster New mimetic discretizations of diffusion-type problems on polygonal meshes	IMA workshop Compatible Spatial Discretizations for Partial Differential Equations	May
T-7	Lipnikov	The EMB rezone strategy for ALE methods	SIAM annual meeting, Portland, OR	July

Appendix D–Presentations and Invited Talks

Group	Name	Title	Location	Month (2004)
T-7	Lipnikov	Error estimates for Hessian-based mesh adaptation algorithms with control of adaptivity	International Meshing Roundtable, Williamsburg, VA	September
T-7	Lipnikov	Convergence of mimetic finite difference method for diffusion problems on polyhedral meshes	LACSI Symposium, Santa Fe, NM	October
T-7	Loubere	Polygonal Untangling and Smoothing Used in Arbitrary-Lagrangian-Eulerian Compressible Fluid Flow Context	2004 SIAM Annual meeting	July
T-7	Loubere	An Arbitrary-Lagrangian-Eulerian Code for General Polygonal Mesh: Ale Inc.	2004 SIAM Annual meeting	July
T-7	Loubere	ALE INC: a 2D ALE code on polygonal staggered grids for compressible hydro problems	Copper Mountain Conference on Iterative Methods, Copper Mountain, CO	March
T-7	Loubere	A 2D ALE code on general polygons for shock wave simulation	Int. Conf. New Models and Hydro-Codes for Shock Wave Simulation	May
T-7	Moulton	Mimetic Preconditioners for Mixed Discretizations of the Diffusion Equation	Compatible Spatial Discretizations for Partial Differential Equations, University of Minnesota, MN	May
T-7	Moulton	Performance Tuning of Structured Black Box Multigrid for Massively Parallel Distributed Hierarchical Memory Architectures	SIAM Conference on Parallel Processing for Scientific Computing, San Francisco, CA	February
T-7	Moulton	Performance Tuning of Parallel Structured Multigrid	Copper Mountain Conference on Iterative Methods, Copper Mountain, CO	March
T-7	Moulton	Mimetic Preconditioning of Mixed-Hybrid Discretizations	Los Alamos Computer Science Institute Symposium, Santa Fe, NM	October
T-7	Shashkov	Mimetic Finite Difference Methods for Partial Differential Equations and Discrete Vector and Tensor Analysis	Invited Talk, LLNL	December
T-7	Shashkov	Convergence of Mimetic Finite Difference Method for Diffusion Problems on Polyhedral Meshes	Los Alamos Computer Science Institute Symposium, Santa Fe, NM	October
T-7	Shashkov	Mimetic Finite Difference Discretization of Diffusion-Type Problems on Unstructured Polyhedral Meshes	Los Alamos Computer Science Institute Symposium, Santa Fe, NM	October
T-7	Shashkov	Reference Jacobian Rezoning Strategy Arbitrary Lagrangian-Eulerian Methods on Polyhedral Grids	13th International Meshing Roundtable, Williamsburg, VA	September
T-7	Shashkov	Error-Minimization-Based Rezone Strategy for ALE methods	SIAM Annual Meeting, Portland, OR. USA	July
T-7	Shashkov	Polygonal Untangling and Smoothing Used in Arbitrary-Lagrangian-Eulerian Compressible Fluid Flow Context	SIAM Annual Meeting, Portland, OR. USA	July
T-7	Shashkov	2D Arbitrary Lagrangian-Eulerian (ALE) Code on Polygonal Grids for Shock Wave Simulations	International Conference on New Models and Hydrocodes for Shock Wave Processes, College Park, MD	May
T-7	Shashkov	Mimetic Finite Difference Methods for Partial Differential Equations and Discrete Vector and Tensor Analysis	IMA "Hot Topics" Workshop: Compatible Spatial Discretizations for Partial Differential Equations, Minneapolis, MN	May
T-7	Shashkov	Error Minimization-Based Rezone Strategy for ALE Methods	Eight Copper Mountain Conference on Iterative Methods	March
T-7	Shashkov	ALE from ART to Science?	ASCI Workshop on Methods for Coupled Multi-Physics, Monterey	March

Group	Name	Title	Location	Month (2004)
T-7	Shashkov	ALE Inc.: A 2D Arbitrary Lagrangian-Eulerian Code on Polygonal Staggered Grids for Compressible Hydrodynamics Problems	Eight Copper Mountain Conference on Iterative Methods	March
T-7	Shashkov	Constrained Interpolation (Remap) of Divergence-Free Fields	1st Chilean Workshop on Numerical Analysis of Partial Differential Equations, Universidad de Concepcion, Chile	January
T-7	Staley	Conservative Remapper (a.k.a. CORE)	LANL	August
T-7	Staley	Presentation on my current projects (CORE software, Setup project, Marmot project)	Given to the Numerical Analysis Team	November
T-7	Staley	Conservative Remapper (a.k.a. CORE): A Software Component for Conservative Remapping	Given to the Numerical Analysis Team	March
T-7	Staley	A New Software Component for Swept-Region and Exact-Intersection Remapping in Arbitrary Lagrangian-Eulerian Codes	LANL Numerical Analysis Seminar series	January
T-7	Tartakovsky	Random domain decomposition for transport in highly heterogeneous aquifers	AGU Fall Meeting, San Francisco, CA	December
T-7	Tartakovsky	Asymptotic analyses of three-dimensional pressure interference tests	European Geosciences Union General Assembly, Vienna, Austria	April
T-7	Tartakovsky	A perturbation solution to the transient Henry problem for seawater intrusion	XV Int. Conf. Computational Methods in Water Resources, Chapel Hill, NC	June
T-7	Tartakovsky	Uncertainty quantification for flow in highly heterogeneous porous media	XV Int. Conf. Computational Methods in Water Resources, Chapel Hill, NC	June
T-7	Vixie	Image Analysis as an Inverse Problem: Metrics, Regularization and Geometric Analysis	U. Minnesota/IMA, invited talk	December
T-7	Vixie	Image Analysis as an Inverse Problem: Metrics, Regularization and Geometric Analysis	ISR Division Colloquium, invited talk	December
T-7	Vixie	Exact Solutions for L1TV	Banff International Research Station, MIAP, invited talk	October
T-7	Vixie	Geometric Analysis: and Introduction and Examples	Clarkson University, invited talk	September
T-7	Vixie	Metrics for the comparison of data and simulation	LANL	June
T-7	Wohlberg	Random Domain Decomposition for Transport in Highly Heterogeneous Aquifers	AGU Fall Meeting, San Francisco	December
T-7	Wohlberg	Lifted linear phase filter banks and the polyphase-with-advance representation	11th IEEE Digital Signal Processing Workshop, Taos, NM	August
T-8	Abazajian	Neutrino Clustering in Cold Dark Matter Halos	ECT* Workshop on Neutrinos and the Early Universe	October
T-8	Abazajian	Chemical Enrichment at z=10^9	Chemical Enrichment in the Early Universe	August
T-8	Abazajian	Cosmology from the Deeply Nonlinear Regime: the SDSS Two-point Correlation Function	Santa Fe Cosmology Workshop	July
T-8	Abazajian	Neutrino Dark Matter Clustering: Analytic and Numeric Predictions	Moriond Conference on Exploring the Universe Contents and Structures of the Universe	April
T-8	Abazajian	The Galaxy Dark Matter Halo Occupation, Two-point Correlation and Cosmology	Aspen Winter Conference on Astrophysics	January
T-8	Bhattacharya	Active feedback cooling in cavity	SQUINT04	February

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Group	Name	Title	Location	Month (2004)
T-8	Cooper	Exact Solitary Wave Solutions to the Discrete Version of Lambda Phi^4 Field Theory	Los Alamos National Laboratory	December
T-8	Cooper	Need for a Virtual Phenomenology Institute	APS-DPF Meeting	September
T-8	Cooper	Understanding the Dynamics of Coherent Structures in Non-Linear Dynamical Systems	Santa Fe Institute	June
T-8	Cooper	Variational Approaches to Soliton Dynamics, Quantum Phase Transitions and Thermalization of Quantum Fields	Johns Hopkins University	April
T-8	Cooper	Variational Approaches to Soliton Dynamics, Quantum Phase Transitions and Thermalization of Quantum Fields	Cornell University	February
T-8	Friedland	What can solar neutrino experiments tell us about neutrino interaction with matter?	P-25 Seminar, Los Alamos National Laboratory	January
T-8	Friedland	Solar Neutrinos as Probes of Neutrino-Matter Interactions	Cornell University, Particle Theory Seminar	April
T-8	Friedland	Solar Neutrinos as Probes of Neutrino-Matter Interactions	California Institute of Technology, High Energy Physics Seminar	May
T-8	Friedland	Solar Neutrinos as Probes of Neutrino-Matter Interactions	Stanford Linear Accelerator Center, Theory Group Seminar	May
T-8	Friedland	Solar Neutrinos as Probes of Neutrino-Matter Interactions (Poster)	XXI International Conference on Neutrino Physics and Astrophysics	June
T-8	Friedland	Solar Neutrinos as Probes of Neutrino-Matter Interactions	Aspen Center for Physics, Lepton Number Violation: Neutrinos, Leptogenesis, Grand Unified Theories and Beyond	July
T-8	Friedland	Measuring Neutrino Interactions with Atmospheric Neutrinos	Institute for Advanced Study	October
T-8	Friedland	Solar and Atmospheric Neutrinos and Non-Standard Neutrino Interactions	XXI International Conference on Neutrino Physics and Astrophysics	June
T-8	Friedland	Non-Standard Neutrino Interactions and Neutrino Oscillations	APS 2004 Meeting of the Division of Particles and Fields	August
T-8	Friedland	Measuring Neutrino Interactions with Atmospheric Neutrinos	T-8 Seminar, Los Alamos National Laboratory	October
T-8	Friedland	Probing Neutrino Interactions with Solar and Atmospheric Neutrinos	High Energy Physics Seminar at New York University	October
T-8	Gupta	Opportunities and Challenges for a Computational Science Center	Invited Talk at Brown University	November
T-8	Gupta	Teen Freedoms, Sexual Health, and Making the Right Choices	UNIDOS 2004	November
T-8	Gupta	The Future of the Poor, Illiterate, and Marginalized Populations	Center for International Security and Cooperation	October
T-8	Gupta	The Future of the Poor, Illiterate, and Marginalized Populations	Woodrow Wilson Center	September
T-8	Gupta	Phenomenology from Lattice QCD	PASCOS 2004	September
T-8	Gupta	Calculating epsilon'/epsilon using HYP Staggered Fermions	Lattice 2004	June
T-8	Habib	Large-Scale Cosmological Simulations	LANL/NRAO Mini-Symposium	November
T-8	Habib	Quantum Nonlinear Dynamics	Workshop on Nonlinear Dynamics in Astronomy and Physics	November
T-8	Habib	Quantum Feedback Control in Nanomechanics	Principles and Applications of Control in Quantum Systems	August
T-8	Habib	Velocity Fields with the SDSS	Fermilab	June
T-8	Habib	Cosmological Foundations or Night Thoughts of a Working Cosmologist	Public Talk, Bradbury Science Museum	June

Group	Name	Title	Location	Month (2004)
T-8	Habib	Three Aspects of the Primordial Fluctuation Power Spectrum	Invited Talk, New Mexico State University	April
T-8	Habib	Numerical Simulations for the Sloan Digital Sky Survey	Sloan Digital Sky Survey Collaboration Meeting	March
T-8	Mottola	Dark Energy and Condensate Stars: Casimir Energy in the Large	6th Workshop on Quantum Field Theory Under the Influence of External Conditions, QFEXT03	June
T-8	Mottola	Macroscopic Effects of the Trace Anomaly	University of California, Riverside	October
T-8	Mottola	Macroscopic Effects of the Trace Anomaly	Dark Energy: Aspen Center for Physics	September
T-8	Mottola	Macroscopic Effects of the Trace Anomaly	University of Michigan	May
T-8	Mottola	Macroscopic Effects of the Trace Anomaly	New York University	February
T-8	Mottola	Gravitational Condensate Stars: An Alternative to Black Holes	University of California, Riverside	October
T-8	Mottola	Gravitational Condensate Stars: An Alternative to Black Holes	University of California, Los Angeles	October
T-8	Mottola	Gravitational Condensate Stars: An Alternative to Black Holes	University of Colorado	October
T-8	Mottola	Gravitational Condensate Stars: An Alternative to Black Holes	Ohio State University	September
T-8	Mottola	Gravitational Condensate Stars: An Alternative to Black Holes	New York University	February
T-8	Mottola	Gravitational Condensate Stars: An Alternative to Black Holes	University of Maryland	January
T-8	Mottola	Gravitational Condensate Stars: An Alternative to Black Holes	University of Michigan	May
T-8	Nieto	Antineutrino Detection for Non-Proliferation	Mini-Symposium on Dev. in Nuclear Structure and Reaction Theory for Astrophysics Stockpile Stewardship	October
T-8	Nieto	The Pioneer Anomaly: The Data, Its Meaning, and a Possible Test	Research and Scientific Support Department Seminar, ESTEC	September
T-8	Nieto	Controlled Antihydrogen Propulsion for Future Missions into Very Deep Space	Advanced Concepts Team Seminar, ESTEC	September
T-8	Nieto	The Pioneer Anomaly: The Data, Its Meaning, and a Future Test	Second Mexican Meeting on Math. and Experimental Physics	September
T-8	Nieto	Controlled Antihydrogen Propulsion for NASA's Future in Very Deep Space	Conference on the Pioneer Anomaly, ZARM, U. of Bremen	May
T-8	Nieto	A Mission to Test the Pioneer Anomaly	Conference on the Pioneer Anomaly, ZARM, U. of Bremen	May
T-8	Nieto	Finding the Origin of the Pioneer Anomaly	Conference on the Pioneer Anomaly, ZARM, U. of Bremen	May
T-8	Nieto	Controlled Antihydrogen Propulsion for NASA's Future in Very Deep Space	NASA/JPL 2004 Workshop in Fundamental Physics	April
T-8	Shirman	Deconstruction of AdS and Chiral Gauge Theories	Frontiers Beyond the Standard Model II	October
T-8	Shirman	A Second Look at Anomaly Mediation	12th International Conference on Supersymmetry and the Unification of Fundamental Interactions	June
T-8	Shirman	A Second Look at Anomaly Mediation	QUARKS 2004: 13th International Seminar on High Energy Physics	May
T-8	Steck	Quantum Control in Atom Optics: Present and Future	Colloquium, University of Oregon	February
T-8	Steck	Quantum Control in Atom Optics: Present and Future	Seminar, University of British Columbia	March

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Group	Name	Title	Location	Month (2004)
T-8	Steck	Quantum Feedback Control of Atomic Motion in Cavity QED	Seminar, Universidade Federal do Rio de Janeiro	August
T-8	Xu	Measurements of cosmological parameters using long duration Gamma-ray bursts	A Workshop on Studies of Dark Energy and Cosmology from X-ray Cluster Surveys	January
T-8	Xu	Application of Voronoi Tessellation on Finding Large-scale Structures	20th Annual NM Astrophysics Symposium	October
T-8	Xu	Application of Voronoi Tessellation on Finding Large-Scale Structures	Fundamental Physics from Galaxy Clusters	December
T-10	Blinov	The EcoTFs Database: Escherichia Coli Transcription Factors and Signals	RECOMB 2004	March
T-10	Blinov	Modeling and analysis of Combinatorial Complexity in signal transduction	ICCS 2004	March
T-10	Blinov	Rule based modeling of multi-component species	9th SMBL Forum	October
T-10	Blinov	Modeling and analysis of signal transduction Without Ignoring Their Combinatorial Complexity	5th International Conference on Systems Biology	October
T-10	Blinov	Bionetgen: A Modeling Tool That Handles Combinatorial Complexity	Mathematical Models in Signaling Systems, Vanderbilt University	June
T-10	Bruno	Overview of Computational Biology Research in T-10 with emphasis on Sequence Characterization and Attribution	Bioscience Capabilities overview meeting, UNM/DTRA	April
T-10	Bruno	Quantitative Measurement of Covariation on Evolutionary Tree with Application to Contact Prediction	CASP 6 Meeting	December
T-10	Dahari	Non-cytolytic HCV clearance and early blockade of viral production indicated by mathematical modeling of primary HCV infection in chimpanzees	Models and methods in Immunology	February
T-10	Dahari	Non-cytolytic HCV clearance and early blockade of viral production indicated by mathematical modeling of primary HCV infection in chimpanzees	Israel Association for the Study of Liver (IsASL)	March
T-10	Dahari	Effects of PEG-IFN-Alpha 2a (40kD) dose reduction, . . . in the DITTO-HCV study	AASLD	October
T-10	Faeder	Mathematical and Computational Modeling of Signal Transduction	The Science of Intelligent Systems, UNM	December
T-10	Faeder	Mathematical and Computational Modeling of Signal Transduction	Biophysics Colloquium, Cornell University	December
T-10	Faeder	Mathematical and Computational Modeling of Signal Transduction	Immunology Seminar SERIS, University of Virginia	October
T-10	Faeder	Mathematical and Computational Modeling of Signal Transduction	Gold Group Seminar series UNM Health Science Center	November
T-10	Faeder	Mathematical Models of Cell Signaling: Complex Complexes	Los Alamos Summer School	June
T-10	Faeder	Modeling combinatorial complexity in cell signaling	Mathematical Models in Signaling Systems	June
T-10	Faeder	Mathematical Models of Cell Signaling: Complex Complexes	UNM Biocomplexity Seminar Series	February
T-10	Faeder	Modeling Complex formations in signal transduction what we've learned so far	2nd NM workshop on Computational Cell Biology	January
T-10	Faeder	Investigating the Role of Complex Formation in Immunoreceptor Signaling Using Mathematical Modeling	12th International Congress of Immunology and 4th Annual Conference of FOCIS	Jul03
T-10	Frauenfelder	Protein energy landscape and fluctuations	Inst. for Pure Applied Mathematics	June
T-10	Frauenfelder	The First Moessbauer Conference	APS	May

Group	Name	Title	Location	Month (2004)
T-10	Frauenfelder	Discussant	ICAM Workshop	April
T-10	Frauenfelder	The EL in Proteins and Glasses	Dynamic Energy Landscapes and Functional Systems	March
T-10	Frauenfelder	Proteins and Glasses	University of Cincinnati	November
T-10	Frauenfelder	Physics of Proteins	Iowa State Colloquium	April
T-10	Frauenfelder	Physics of Proteins	UNM Physics Dept. Seminar	December
T-10	Frauenfelder	The Energy Landscape and Dynamics of Proteins	Chemistry and Physics Colloquium	October
T-10	Frauenfelder	The Energy Landscape and Dynamics of Proteins	University of Strasbourg France	May
T-10	Frauenfelder	The Energy Landscape and Dynamics of Proteins	ICBP 2004	August
T-10	Frauenfelder	The Energy Landscape in Proteins A Paradigm of Stochastic Complexity	Workshop, New Horizons in Stochastic Complexity	September
T-10	Frauenfelder	Fluctuations Control Biomolecular Processes	SPIE International Conference on Fluctuations and Noise	May
T-10	Frauenfelder	The Energy Landscape and Dynamics of Proteins	ISIS University of Pasteur	May
T-10	Frauenfelder	Protein Dynamics	Biozentrum University of Basel, Switzerland	May
T-10	Garcia	Simulations of the folding/unfolding Thermodynamics of Protein Al	2nd Multiscale Materials Modeling Conference	June
T-10	Garcia	Atomic simulations of protein folding, binding and aggregation	pre-Protein Society Symposium	August
T-10	Garcia	Role of water in protein folding, binding and aggregation	2004 Gordon Conference	August
T-10	Garcia	Simulations of the folding/unfolding Thermodynamics of Protein Al	59th Calorimetry Conf.	June
T-10	Garcia	Atomic Simulation of the Insertion and Folding of a Protein into a Membrane	Biological Membranes: Emerging Challenges at the Interface Between Theory Computer Simulation and Experiment	June
T-10	Garcia	Detailed Atomistic Simulation of protein folding	Colloquium, Rensselaer Polytechnic Institute	June
T-10	Garcia	Simulations of the folding/unfolding Thermodynamics of Protein Al	UCLA Inst. for Pure and Applied Mathematics Workshop III	May
T-10	Garcia	Atomistic simulations of protein folding	FSU, School of Computational Science and Info. Tech.	April
T-10	Garcia	Describing the folded and unfolded state of proteins by simulations	UCSF, Dills Group	April
T-10	Garcia	Exploring the folding energy landscape of proteins	DELFS 04	April
T-10	Garcia	Detailed Atomistic Simulation of protein folding	UCSD, Center for Theo. Biol. Physics Seminar	March
T-10	Garcia	Detailed Atomistic Simulation of protein folding	NMSU Physics Colloquium	February
T-10	Garcia	Folding Mechanisms	Second Gordon Research Conference On Protein Folding	February
T-10	Garcia	Folding a protein in a computer	CNLS Annual Conference	May
T-10	Garcia	Folding a protein in a computer	Johns Hopkins colloquium	February
T-10	Garcia	Modeling DNA Bubble Formation at the Atomic Scale	Second International Conference on Multiscale Modeling	October
T-10	Garcia	Exploring the Energy Landscape of Proteins	Second International Conference on Multiscale Modeling	October

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Group	Name	Title	Location	Month (2004)
T-10	Garcia	Reversible Temperature and Pressure Denaturation of a Protein Fragment: A Replica Exchange Molecular Dynamics Simulation Study	HPBB 2004	September
T-10	Garcia	Molecular Dynamics Study of Hydration of the Protein Interior	Computational Physics	September
T-10	Garcia	Atomic Simulations of Protein Folding, Binding, and Aggregation	Algorithms for Macromolecular Modeling	August
T-10	Gnanakaran	Nature of structural inhomogeneities on folding a helix/their influence on spectral measurements	Arizona Days Conference	January
T-10	Gnanakaran	Connecting the wiggling and jiggling of atoms to measurements	Univerity of Arizona	January
T-10	Gnanakaran	Folding studies at atomic resolution: Understanding structural manifestations on measurements	Quantum and Semiclassical Molecular Dynamics of Nanostructures	July
T-10	Hlavacek	BioNetGen: a modeling tool that handles combinatorial complexity	Mathematical Models in Signaling Systems	June
T-10	Hlavacek	Modeling Combinatorial Complexity in Cell Signaling	Mathematical Models in Signaling Systems	June
T-10	Korber	Molecular Mechanisms of HIV Pathogenesis (X7)	HIV Vaccine Development: Progress and Prospects (X8)	April
T-10	Korber	Imprinting of CTL Escape Mutations on the Viral Population in Durban, South Africa	AIDS Vaccine 2004	August
T-10	Korber	Neutralization Antibody Signature Patterns in HIV Sequences	HIV Dynamics and Evolution Conference	April
T-10	Kuiken	Full Length Sequencing of HCV Identifies Novel Regions of the Viral Genome Associated with Response to Antiviral Therapy	11th Symposium on Hepatitis C and Related Viruses	October
T-10	Labute	The royal of functionally distinct conformational substates in Dioxygen Activation by Myoglobin	T-10 Seminar Talk	April
T-10	Labute	The royal of functionally distinct conformational substates in Dioxygen Activation by Myoglobin	CNLS Annual Conference	May
T-10	Leitner	Recombination, 3D Network Structure, Multiple Transmission and Subpopulation Frequency Shifts in a Mother-to-Child Transmission Case	2004 International Bioinformatics Meeting	September
T-10	Leitner	HIV Database Workshop	11th Conference on Retroviruses and Opportunistic Infections	February
T-10	Leitner	Recombination, 3D Network Structure Multiple Transmission and Subpopulation Frequency Shifts in a Mother-to-Child Transmission Care	HIV Dynamics and Evolution	April
T-10	Pearson	Identification and Equivalence of Hidden Markov Models for Single Ion Channel Kinetics Using the Inter-Conductance Rank	State University of New York	August
T-10	Pearson	Identification and Equivalence of Hidden Markov Models for Single Ion Channel Kinetics Using the Inter-Conductance Rank	Mathematics Seminar	October
T-10	Pearson	Identification and Equivalence of Hidden Markov Models for Single Ion Channel Kinetics Using the Inter-Conductance Rank	System Science Seminar	October
T-10	Pearson	Sheet excitability and nonlinear wave propagation	New Jersey Institute of Technology	May

Group	Name	Title	Location	Month (2004)
T-10	Pearson	Sheet excitability and nonlinear wave propagation	University of Connecticut Health Sciences Center Seminar	May
T-10	Pearson	Identification and Equivalence of Hidden Markov Models for Single Ion Channel Kinetics Using the Inter-Conductance Rank	State University of New York	August
T-10	Perelson	Study of Pharmacodynamics of Antiretroviral Agents in HIV-1 Infected Patients Using Viral Dynamic Models With Consideration of Drug Susceptibility and Adherence	Conference on Retroviruses and Opportunistic Infections 2005	February
T-10	Perelson	HIV Decay Rates Do Not Increase . . . Controlled Trial (HIV-NAT 102)	Conference on Retroviruses and Opportunistic Infections 2005	February
T-10	Perelson	Viral Kinetics in Acute SIV/SHIV Infection: Estimation of the Basic Reproductive Ratio (R0)	Conference on Retroviruses and Opportunistic Infections 2005	February
T-10	Perelson	An Overview of Computational and Theoretical Immunology	3rd International Conference on Artificial Immune Systems	September
T-10	Perelson	Modeling Viral Infections	Summer School on Mathematics in Biology and Medicine	September
T-10	Perelson	What We Can Learn By Studying HCV Kinetics?	Hong-Kong-Shanghia International Liver Congress	February
T-10	Perelson	The Population Dynamics of Cytotoxic T Lymphocytes	Computational and Mathematical Population Dynamics Conference	June
T-10	Ribeiro	Impact of Thymectomy on the Peripheral T-Cell Pool . . . Immunodeficiency Virus	Telethon Institute, Perth, Australia and Center for Vaccine Research	Jan05
T-10	Ribeiro	Viral Kinetics in Acute SIV/SHIV Infection: Estimation of the Basic Reproductive Ratio (R0)	12th Conference on Retroviruses and Opportunistic Infections	Feb05
T-10	Ribeiro	Modeling a Thymectomy Experiment to Quantify Production of New T-Cells	Immune Models and Host-Pathogen Dynamics Workshop	May
T-10	Ribeiro	Measuring the Basic Reproductive Ratio (R0) From in Vivo Data	Society of Mathematical Biology Annual Meeting, U. of Michigan	July
T-10	Sanbonmatsu	Structural pathway of tRNA Accommodation into the Ribosome	RNA 2004 Meeting	June
T-10	Sanbonmatsu	Simulating of the 70S ribosome in explicit solvent	Arizona Days	January
T-10	Sanbonmatsu	Towards a movie of the ribosome: a whole ribosome molecular dynamics simulation	Biophysical Society Meeting	February
T-10	Sanbonmatsu	Accommodation of tRNA by the ribosome: all-atom computer simulations	Jaime Doudna Cate Lab UCB	October
T-10	Sanbonmatsu	Accommodation of tRNA by the ribosome: all-atom computer simulations	Harry Noler Lab UCSC	August
T-10	Sanbonmatsu	Multimillion Atom Simulations of the Ribosome: A New State-Of-The-Art in Computational Biology	Super Computing 2004 Conference (IEEE)	November
T-10	Stajic	From ultracold superfluids to high temperature superconductors	Condensed Matter Theory Center	February
T-10	Stajic	The nature of superfluidity in ultracold fermi gases near Feshbach resonances	APS Meeting	March
T-10	Torney	Maximum Algorithms for DSN Swarming	ISRM 2004	April
T-10	Torney	Proliferation Detection Technologies Program Technical Information Exchange	TIE Meeting, LANL	March
T-10	Tung	A SANS Contrast Variation Study to Elucidate Structural . . . Activator Protein Calmodulin	American Conference on Neutron Scattering	June
T-10	Tung	A Knowledge Based Approach for Modeling RNA Loop Structures	49th Annual Meeting, Biophysical Society	Feb05

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Group	Name	Title	Location	Month (2004)
T-10	Zhang	Evolutionary and Immunological Implications of N-Linked Glycoslation Site in HIV Envelope	AIDS Vaccine 2004 Conference	August
T-11	Abanov	The Spin Resonance and high Frequency Optical Properties of the Cuprates	APS March Meeting	March
T-11	Abanov	The Missing Part of the Hertz-Millis Theory	LANL Workshop	May
T-11	Abanov	Quantum Criticality The fate of Adiabaticity	Texas A&M University Colloquium	December
T-11	Albers	From atom to Engineering: Multiscale Methods for Dispacive Phase Transformations	Texas Tech University	October
T-11	Albers	Pu-A Condensed matter Point of View	Actinide Sci. for the 21st Century	May
T-11	Albers	Mechanical and Thermodynamics properties of Solid Zirconium Using a Tight-Binding approach	APS March Meeting	March
T-11	Batista	Condensation of Triplons in Han Purple Pigment BaCuSi206	Geballe Laboratory for Advanced Materials Stanford University	October
T-11	Batista	Exact Ground States of a Frustrated 2D Magnet: Deconfined Fractional Excitations at a First order quantum Phase Transition	Institute of Theoretical Physics Switzerland	October
T-11	Batista	Electronic Ferroelectricity: A Novel Broken Symmetry State	Dept. of Physics, University of Fribourg	September
T-11	Batista	Exact Ground States of a Frustrated 2D Magnet: Deconfined Fractional Excitations at a First order Quantum Phase Transition	International Workshop on Frustrated Magnetism, New York	September
T-11	Batista	Condensation of Triplons in Han Purple Pigment BaCuSiz06	2nd Asia-Pacific Workshop, Condensed Matter Physics	June
T-11	Boulaevskii	Radiation from Josephson Vortex Flow in Layered Superconductors	Int'l Workshop on Nanomagnetism and Superconductivity, Argonne	November
T-11	Boulaevskii	Radiation from Josephson Vortex Flow in Layered Superconductors	Int'l Conf. Fundamental Problems of High Temperature Superconductivity	October
T-11	Graf	High-pressure Debye-Waller and Grueneisen parameters of AU and CU	AIP Conference	July
T-11	Graf	Strong Electron -Phonon Coupling in Delta Phase Stabilized Pu0.95A10.05	The 59th Calorimetry , Santa Fe, NM	June
T-11	Graf	Glass and Stripe Phases in the Coexistence Region of superconductivity and Antiferromagnetism	D E L F S 04 - Santa Fe, NM	March
T-11	Gubernatis	Interference Mechanism for Itinerant Ferromagnetism	2nd Workshop of Predictive Capabilities for Strongly Correlated Systems - Oak Ridge	November
T-11	Gubernatis	Marshal Rosenbluth and the Metropolis Algorithm	Annual Meeting of the Division of Plasma Physics, Savannah	November
T-11	Gubernatis	Itinerant Ferroelectricity: Some new results for a new phenomena	Recent Advance in Condensed Matter Physics,Hong Kong	June
T-11	Hruska	Effects of a Single Quantum Spin on Josephson Oscillations	XII Int'l Conference on Recent Progress in Many-Body Theories	November
T-11	Hruska	Tunneling Spectroscopy of Magnetic Excitations in Layered Magnetic Superconductors	Int'l Workshop on Nanomagnetism and Superconductivity, Argonne	November
T-11	Lomdahl	Dislocation Structure Behind a Shock Front in FCC Perfect Crystals	TMS - Ron Armstrong Symposium	February
T-11	Martin	Stripes in Superconducting Cuprates Possible Phases and their Diagnostics	International Conference on Dynamical Energy Landscapes, Santa Fe	April

Group	Name	Title	Location	Month (2004)
T-11	Martin	Surprising spin and charge dynamics of single electron traps in field-effect transistors	Clarkson University, New York	May
T-11	Martin	Single electron spin and charge dynamics in a field effect transistor	University of Illinois,Dept. of Physics	November
T-11	Martin	Electrical detection of single electron spin resonance	QUEST Workshop, Santa Fe, NM	August
T-11	Martin	Stripes in Superconducting Cuprates Possible Phases and their Diagnostics	Stripes 2004, Rome, Italy	September
T-11	Martin	Single electron spin measurement in Si MOSFET: experiment and theory	Argonne Theory Conference	November
T-11	Martin	Ground State Cooling of Nanomechanical Resonators	APS March Meeting	March
T-11	Martin	Fluctuations, Dissipation, and Quantum Measurement	Aspen Center for Physics	July
T-11	Mozyrsky	Magnetic Properties of Random Telegraph Noise in Field-Effect Transistors: Single Spin resonance and Kondo Effect	Material Science Colloquium, Cornell University	October
T-11	Mozyrsky	Single spin magnetic resonance and strong correlations in electron traps in field-effect transistors	University of Karlsruhe Colloquium	July
T-11	Mozyrsky	Physics and Applications of Random Telegraph Noise in Field-Effect Transistors	University of New York Physics Colloquium	February
T-11	Ortiz	Seminar	QUEST 2004, Santa Fe, NM	December
T-11	Ortiz	Condensed Matter Colloquium	von Neumann Institute, Juelich, Germany	July
T-11	Ortiz	Theory Seminar	Max Planck Institute, Munich, Germany	July
T-11	Ortiz	Quantum Information Science Seminar	University of Illinois	January
T-11	Ortiz	Condensed Matter Seminar	University of Illinois	January
T-11	Saxena	Mesoscopic Modeling of Microstructure and Magnetoelastic Materials	National Congress on Materials: Symposium on Magnetic Shape Memory Alloys, Cancun, Mexico	August
T-11	Saxena	Elasticity of Membranes and Vesicles: Role of Topology	Workshop on Topological Solitons and their applications in Physics and Biology	August
T-11	Saxena	Textures in a Generalized Ginzburg-Landau Free Energy	APS March Meeting Montreal, Canada	March
T-11	Saxena	Pieoelectric Response of Engineered Domains in Ferroelectrics	APS March Meeting, Montreal, Canada	March
T-11	Saxena	Pieoelectric response Of Domains in Ferroelectrics	National Institute for Materials Science Tsukuba, Japan	December
T-11	Saxena	Intrinsic Inhomogeneity in Multiferroic Materials	National Institute for Materials Science Tsukuba, Japan	December
T-11	Saxena	Landau Theory of Structural Phase Transformations and Long-Range Forces	National Institute for Materials Science Tsukuba, Japan	December
T-11	Saxena	Intrinsic Inhomogeneity, Microstructure and Complex Functional Materials	Dipartimento di Fisica, Universit di Roma, Rome Italy	June
T-11	Saxena	Spintronics: Exploring Spin based Phenomena in Materials	Facultat de Fisica, Universitat de Barcelona, Spain	May
T-11	Saxena	Intrinsic Inhomogeneity, Texturing and Complex Functional Materials	Indian Institute of Technology, Kanpur, India	January
T-11	Schnell	Ab-initio mechanical and thermodynamic properties of solids using the tight-binding approach	University of Bremen, Germany	June
T-11	Schnell	Details of the tight-binding approach	University of Bremen, Germany	June

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Group	Name	Title	Location	Month (2004)
T-11	Smith	Electron spin Injection from Ferromagnetic Contacts	University of Wisconsin	June
T-11	Smith	Electron spin injection from ferromagnetic Contacts	University of Utah	May
T-11	Smith	Electron Spin Injection from Ferromagnetic Contacts	Ohio State University	April
T-11	Trugman	Dynamics of Quasiparticle Formation	Case Western Reserve University	December
T-11	Trugman	Dynamics of Polaron Formation	Workshop on Colossal Magnetoresistive Manganites	July
T-11	Zhu	Nanoscale electronic structure in high-temperature superconductors	Indiana Purdue University	January
T-11	Zhu	Nanoscale electronic structure in high-temperature superconductors	New York State University	January
T-12	Asthagiri	Quasi-Chemical Theory and the Hydration of Ions in Aqueous Solutions	CECAM workshop on Continuing Challenges in Free Energy Calculations	May
T-12	Asthagiri	Quasi-Chemical Theory and the Hydration of Ions in Aqueous Solutions	UCB, Invited talk at the Department of Chemistry	June
T-12	Asthagiri	Quasi-Chemical Theory and the Hydration of Ions in Aqueous Solutions	Workshop on Quantum and Semiclassical Molecular Dynamics of Nanostructures, CNLS, LANL	July
T-12	Asthagiri	A Fresh Attack on the Statistical Thermodynamics of Molecular Liquids	Workshop on Quantum and Semiclassical Molecular Dynamics of Nanostructures, CNLS, LANL	July
T-12	Asthagiri	Quasi-Chemical Theory and Hydrophyllic Hydration	John Hopkins University, Seminar for the Department of Chemical and Bimolecular Engineering	August
T-12	Asthagiri	Hydration of Biomolecular Specific Aqueous Dictation: Insights from Quasi-Chemical Theory	American Institute of Chemical Engineers Annual Meeting	November
T-12	Babikov	Quantum Origin of Anomalous Isotope Effect in Ozone Formation	Invited lecture in the University of Central Florida	April
T-12	Babikov	Anomalous Isotope Effect in Ozone Formation: Discovery, Hypotheses, Explanation	Fall Meeting of the American Chemical Society	August
T-12	Batista	Excited State Calculations of the States Involved in the Luminescent Probe [Ru(bpy)2dppz]2+	ACS PRF Summer School: TD-DFT and Dynamics of Complex Systems	June
T-12	Batista	Excited State Calculations of the States Involved in the Luminescent Probe [Ru(bpy)2dppz]2+	ACS Annual March Meeting	March
T-12	Batista	Calculations of Thermochemistry and Molecular Properties of UFn and UCln using DFT	ACS Annual March Meeting	March
T-12	Challacombe	Linear Scaling Electronic Structure Theory: From Density Matrices to Response Functions	44th Sanibel Symposium	February
T-12	Challacombe	Linear Scaling Electronic Structure Theory: From Density Matrices to Response Functions	James Frank Institute, University of Chicago	January
T-12	Chao	A Coarse-Grained Rigid Blob Model: Toward Mesoscopic Simulations	24th CNLS Annual Conference	May
T-12	Chao	Coarse-Grained Rigid Model: Toward Multiscale Molecular Simulations	Molecular Modeling of Macromolecules, ACS Conference	March
T-12	Clark	Wave Function Analysis for the Elicidation of Actinide Electronic Structure	Washington State University Departmental Seminar	November

Group	Name	Title	Location	Month (2004)
T-12	Clark	New Approaches to the Analysis of Bonding in Simple Actinide Complexes using Density Functional Theory	227th ACS National Meeting	March
T-12	Clark	Unusual Excited State Electronic Structure of (Cp)2Th(NCph)2: Not LMCT After All	227th ACS National Meeting	March
T-12	Goupalov	Spectral Weight of Zero Phonon Line in Linear Absorption Spectra of Semiconductor Quantum Dots	International Meeting on Fundamental Optical Processes in Semiconductors	August
T-12	Hanson	Micro-mechanical modeling of PBX 9501 Binder	Energetic Materials Review	November
T-12	Hanson	A Micromechanical Model for Estane to Relate Chemical Degradation to Extreme STS Requirements	Enhanced Surveillance Campaign Annual Review	March
T-12	Hanson	A Micromechanical model for filled polymers	Enhanced Surveillance Campaign Annual Review	March
T-12	Henkelman	Methods for simulating long time scales in atomic systems	APS March Meeting	March
T-12	Holian	Energy exchange between mesoparticles and their internal degrees of freedom	CECAM Workshop	May
T-12	Holian	Energy exchange between mesoparticles and their internal degrees of freedom	Computational Modeling and Simulations of Materials	June
T-12	Kendrick	Quantum Hydrodynamics: Application to N-dimensional Reactive Scattering	CNLS workshop Quantum and Semiclassical Molecular Dynamics of Nanostructures	July
T-12	Koslowski	Dislocation Patterns and the Deformation of Metals	TMS Annual Meeting	October
T-12	Koslowski	Avalanches and Scaling in Creep Phenomena	Multiscale Modeling of Materials	October
T-12	Koslowski	Micromechanical Modeling for Thermo-Mechanical Reliability in Interconnects	MRS Fall Meeting	November
T-12	Koslowski	Material Length Scales in Plastic Flow	MRS Fall Meeting	November
T-12	Koslowski	Dislocation Patterning and Scaling in Plastic Deformation	LANL Materials Theory Seminar	October
T-12	Koslowski	Microstructure and Macroscopic Response of Single Crystals under External Loading	CalTech Mechanical Engineering Seminar	October
T-12	Koslowski	Dislocation Patterning and Avalanches in Plastic Deformation	MIT Dept. of Mech. Eng. & Dept. of Mat. Sci. and Eng. Seminar	November
T-12	Kress	Matter in Extreme Environments	X-2 Seminar Series, LANL	June
T-12	Kress	Aging and Free-Radical Oxidation of PBX-9501	34th Annual PolyMAC Symposium	June
T-12	Kress	Matter in Extreme Environments	X-4 Seminar Series, LANL	April
T-12	Kress	Simulations of Ultracold Plasmas and Rydberg Gasses	At the Frontier of Cold Rydberg Gasses and Ultracold Plasmas, International Workshop	March
T-12	Kress	Quantum Molecular Dynamics Simulations of Warm Dense Plasmas	14th APS Topical Conference on Atomic Processes in Plasmas	April
T-12	Kress	Coarse-Grained Rigid Blob Model for Macromolecule Simulation	Conference on Statistical Physics of Macromolecules	May
T-12	Lesar	An Analytic Model of Bone Remodeling	2nd International Workshop on Multiscale Modeling	October
T-12	Lesar	Mesoscale Modeling of Dislocation Energetics and Dynamics	2nd International Workshop in Multiscale Modeling	October
T-12	Lesar	Coarse-Grained Energetics and Dynamics of Dislocations: Towards a Density Functional Theory of Dislocations	2nd International Workshop on Multiscale Modeling	October

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Group	Name	Title	Location	Month (2004)
T-12	Lesar	Mesoscale Modeling of Dislocation Energetics and Dynamics	Workshop in Linking Processing to Performance through Microstructure II	May
T-12	Lesar	Computational Modeling of Materials: Metals to Biomaterials	UCLA Department of Materials Science and Eng. Invited Seminar	February
T-12	Lesar	Computational Modeling of Materials	Invited Seminar, University of Michigan	January
T-12	Lesar	Discrete and Coarse-Grained Dislocation Structure and Dynamics	Materials and Manufacturing Directorate, Air Force Research Lab	January
T-12	Magyar	A Computational Study of the Optical Properties of Phenylacetylenes	APS March Meeting	March
T-12	Magyar	Density functional theory in one-dimension for contact-interacting fermions	DFT Summer School and Int'l Many-Body Theory Conference	June
T-12	Martin	Hybrid DFT	Workshop on Strongly Correlated Electrons, Oak Ridge, TN	April
T-12	Masunov	Density Functional Theory studies of the ground and excited states of advanced materials	Seminar given at South Dakota School of Mines and Technology	December
T-12	Masunov	Density Functional Theory studies of the ground and excited states of advanced materials	Seminar at Argonne	April
T-12	Masunov	Density Functional Theory studies of the ground and excited states of advanced materials	Seminar at New Mexico School of Mines and Technology	April
T-12	Nemeth	Internal Coordinate Geometry Optimization and Linear Scaling Ab-Initio Theory for Quantum Biochemistry	3rd International Conference Computational Modeling and Simulation of Materials	May
T-12	Pack	Hydrolysis of Estane 5703 in PBX 9501	High explosives working group meeting, LANL	September
T-12	Pack	Symmetry-induced Isotope Effects in Recombination Kinetics	LANL, T-12 Seminar	April
T-12	Pack	Curious Effects in Recombination Kinetics	Gordon Conference on Atomic and Molecular Interactions	July
T-12	Peery	Ab Initio Molecular Dynamics Study of Salt Clathrate Hydrates	Water & Aqueous Solutions, Gordon Conference	August
T-12	Piryatinski	Three-pulse photon-echo spectroscopy as a probe . . . electron -phonon systems	51st Annual Western Spectroscopy Association Conference	January
T-12	Piryatinski	Nonlinear Spectroscopy of Photoexcited Dynamics in Materials with Strong Electron-phonon Coupling	CNLS 24th Annual Conference: Statistical Physics of Macromolecules	May
T-12	Piryatinski	Three-pulse photon-echo spectroscopy as a probe of photoexcited electronic state manifold in coupled electron-phonon systems	Gordon Research Conference: Electronic Processes in Organic Materials	July
T-12	Pratt	Back to the Future of Hydrophobic Effects and Molecular Bioscience	Stanford Computational and Mathematical Engineering Departmental Seminar	November
T-12	Pratt	Hydrophobic Interaction	Gordon Research Conference "Water & Aqueous Solutions"	August
T-12	Pratt	Quasi-Chemical Theory and the Hydration of Ions in Aqueous Solutions	UCB Department of Chemistry Seminar	June
T-12	Pratt	The Potential Distribution Theorem in Modeling of Molecular Solutions	CECAM Workshop Continuing Challenges in Free Energy Calculations	May
T-12	Pratt	A Fresh Attack on the Molecular Theory of Liquids	Institute for Complex Adaptive Materials Dynamic Energy Landscapes and Functional Systems Workshop	April

Group	Name	Title	Location	Month (2004)
T-12	Pratt	A Fresh Attack on the Molecular Theory of Liquids	University of Cincinnati Department of Chemistry Seminar	March
T-12	Redondo	Simple models of phospholipid fluid membranes	UNM Seminar	October
T-12	Redondo	How We Do Science	LANL Seminar	August
T-12	Redondo	Coarse-grained models for nano- and mesoscale soft matter systems	Seminar at Nanotechnology Center, University of Illinois	June
T-12	Redondo	Coarse-grained models for nano- and mesoscale soft matter systems	Frontiers in Materials Research Conference	April
T-12	Redondo	Coarse-grained model for polymers and soft matter	DELFS Conference	April
T-12	Redondo	Modeling and Simulation of Materials	San Diego State Seminar	March
T-12	Redondo	Bone remodeling and resorption	Pfizer Pharmaceuticals, LANL	March
T-12	Redondo	Materials Modeling and Simulation	3M Visit to LANL	March
T-12	Reichhardt	Multiscaling at Point J: Jamming is a Critical Phenomenon	APS March Meeting	March
T-12	Reichhardt	Multiscaling at Point J: Jamming is a Critical Phenomenon	University of Maryland Applied Dynamics Seminar	November
T-12	Reichhardt	Fibrillar Templates and Soft Phases in Systems with Short-Range Dipolar and Long-Range Interactions	Rutgers University Condensed Matter Physics Seminar	November
T-12	Reichhardt	Fibrillar Templates and Soft Phases in Systems with Short-Range Dipolar and Long-Range Interactions	Syracuse University Physics Colloquium	November
T-12	Reichhardt	Fibrillar Templates and Soft Phases in Systems with Short-Range Dipolar and Long-Range Interactions	University of Central Florida Condensed Matter Physics Seminar	October
T-12	Reichhardt	Do Vortices Entangle?	University of Florida Condensed Matter Physics Seminar	October
T-12	Reichhardt	Multiscaling at Point J: Jamming is a Critical Phenomenon	Clark University Physics Colloquium	October
T-12	Reichhardt	Fibrillar Templates and Soft Phases in Systems with Short-Range Dipolar and Long-Range Interactions	University of Wisconsin at Madison, RG Herb Materials Physics Seminar	September
T-12	Reichhardt	Fibrillar Templates and Soft Phases in Systems with Short-Range Dipolar and Long-Range Interactions	University of Iowa, Condensed Matter Physics Seminar	September
T-12	Reichhardt	Fibrillar Templates and Soft Phases in Systems with Short-Range Dipolar and Long-Range Interactions	Iowa State University, Condensed Matter Physics Seminar	September
T-12	Reichhardt	Computer Simulations of Glassy Disordered Media	Los Alamos Women in Science Lunch Talk	July
T-12	Reichhardt	Multiscaling at Point J: Jamming is a Critical Phenomenon	CNLS Seminar, LANL	June
T-12	Reichhardt	Multiscaling at Point J: Jamming is a Critical Phenomenon	University of Michigan Condensed Matter Physics Seminar	May
T-12	Reichhardt	Multiscaling at Point J: Jamming is a Critical Phenomenon	University of Chicago Materials Research Center Seminar	May
T-12	Reichhardt	Multiscaling at Point J: Jamming is a Critical Phenomenon	UCLA Advances in Soft Matter Seminar	April
T-12	Reichhardt	Fibrillar Templates and Soft Phases in Systems with Short-Range Dipolar and Long-Range Interactions	UCSD Condensed Matter Physics Seminar	April
T-12	Reichhardt	Ratchet Cellular Automata	CNLS Seminar, LANL	April

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Group	Name	Title	Location	Month (2004)
T-12	Reichhardt	Fibrillar Templates and Soft Phases in Systems with Short-Range Dipolar and Long-Range Interactions	University of Arizona Physics Colloquium	February
T-12	Reichhardt	Fibrillar Templates and Soft Phases in Systems with Short-Range Dipolar and Long-Range Interactions	Condensed Matter Physics Seminar, Ohio State University	January
T-12	Reichhardt	Fibrillar Templates and Soft Phases in Systems with Short-Range Dipolar and Long-Range Interactions	T-12 Brown Bag Seminar, LANL	January
T-12	Tretiak	Nonlinear optical response of organic electronic materials	Binational Consortium of Optics, Winter School	January
T-12	Tretiak	Semiempirical Methods for Modeling of Photoexcited Dynamics in Organic Electronic Materials	ACS National Meeting	March
T-12	Tretiak	Excited States and Nonlinear Optical Response of Organic Electronic Materials	Department of Chemistry, University of California	April
T-12	Tretiak	Excited States and Nonlinear Optical Response of Organic Electronic Materials	Department of Chemistry, University of Southern California	May
T-12	Tretiak	Nonlinear and Nonadiabatic Dynamics in Coupled Electron-Phonon Systems	Telluride Conference on Nonadiabatic Dynamics	August
T-12	Voter	Accelerated Molecular Dynamics Methods	Workshop at Institute Henri Poincare, Invited Seminar	December
T-12	Voter	Kinetic Monte Carlo	NATO School on Radiation Effects in Solids, lecturer	July
T-12	Voter	Accelerated Molecular Dynamics Methods	NATO School on Radiation Effects in Solids, lecturer	July
T-12	Voter	Accelerated Molecular Dynamics Methods	Sandia National Laboratory, Invited Seminar	July
T-12	Voter	Accelerated Molecular Dynamics Methods	SIAM Conf. on Mathematical Aspects of Materials Science	May
T-12	Voter	Accelerated Molecular Dynamics Methods	Pennsylvania State, Invited Seminar	April
T-12	Voter	Accelerated Molecular Dynamics Methods	NSF/EC Workshop in Methods in Computational Materials Science, invited speaker	April
T-12	Voter	Accelerated Molecular Dynamics Methods	CalTech Invited Seminar	March
T-12	Voter	Atomistic Simulation Methods	Int'l Workshop in Advanced Computational Materials Science	March
T-12	Voter	Accelerated Molecular Dynamics Methods	MIT Department of Mechanical Engineering, Invited Seminar	March
T-12	Voter	Accelerated Molecular Dynamics Methods	Livermore, Invited Talk	January
T-12	Walker	Spectral Library Clustering	DOE Technical Information Exchange Meeting, LANL	March
T-13	Ben-Naim	Granular Gases	SIAM Materials	May
T-13	Ben-Naim	Opinion Dynamics	Dynamics Days	January
T-13	Berman	Self-Assembled Quantum Computation	Quantum Computing Program Review	August
T-13	Berman	Perturbation Theory for Quantum Computation	Naval Research Laboratory	June
T-13	Berman	Modeling of Nano-Devices	Workshop: The CINT Theory, Modeling and Simulation	May
T-13	Chung	Radiation Induced Interaction of Optical Solitons in Random Media	AIMS 5th International Conference on Dynamical systems & Differential Equations	June
T-13	Doolen	LANL Research Projects	DHS Student Intern Workshop	November

Group	Name	Title	Location	Month (2004)
T-13	Doolen	Smuggled Nuclear Weapons	DHS Workshop on Smuggled Nuclear Weapons	May
T-13	Hastings	Exact Multifractal Spectrum for Laplacian Random Walks	ICTP	July
T-13	Hastings	Mean-Field and Anomalous Behavior on a Small-World Network	MIT	February
T-13	Hastings	Lieb-Schultz-Mattis in Higher Dimensions	Brown University	October
T-13	Hastings	Lieb-Schultz-Mattis in higher Dimensions	Princeton University	October
T-13	Hastings	Lieb-Schultz-Mattis in Higher Dimensions	University of California, Davis	May
T-13	Hastings	Lieb-Schultz-Mattis in Higher Dimensions	University of Arizona	February
T-13	Jarzynski	Nonequilibrium Thermodynamics of a Single Biomolecule	Woodward Lecture Series in the Chemical Sciences (Harvard-MIT)	October
T-13	Jarzynski	Nonequilibrium Work Theorems for Systems Strongly Coupled to Thermal Environments	ESI Workshop on Stochastic and Deterministic Dynamics	August
T-13	Jarzynski	Equalities and Inequalities for Transitions Between Nonequilibrium Steady States	Workshop on Quantum Dissipation	May
T-13	Jarzynski	Thermodynamics of a Single Biomolecule	Sanibel Symposium, Biophysics Session	March
T-13	Jarzynski	Targeted-Ensemble Free Energy Methods	CECAM Meeting on Continuing Challenges in Free Energy Calculations	May
T-13	Jarzynski	Classical and Quantal Foundations of Far-From Equilibrium Work Identities	Winter Colloquium on the Physics of Quantum Electronics	January
T-13	Kamenev	Quantum Logic Operations and Creation of Entanglement . . . Interaction Between Qubits	Quantum Computing Program Review 2004	August
T-13	Kamenev	Quantum Logic Operations and Creation of Entanglement . . . Interaction Between Qubits	Third LANL Quantum Workshop	December
T-13	Kamenev	Dynamics of a Scalable Ising Spin . . . Quantum Logic Gates	Arizona Days	January
T-13	Plohr	Conservative Formulations for Numerical Simulation in Solid Mechanics	Computational Physics Advisory Council	March
T-13	Stepanov	Instanton Method of Post-Error-Correction Analytical Evaluation	IEEE Information Theory Workshop	October
T-13	Toroczkai	Gradient Networks: From Transport Efficiency in Scale-Free Graphs to Social Influence Structures	The University of Arizona	March
T-13	Toroczkai	Gradient Networks	UCSD	May
T-13	Toroczkai	Agent-Based Physics	Eotvos University	July
T-13	Toroczkai	Gradient Networks: From Transport Efficiency in Scale-Free Graphs to Social Influence Structures	Computational and Applied Mathematics Seminar	September
T-13	Toroczkai	Exploring the Fabric of Contact Networks for Monitoring and Mitigating Smallpox Epidemics: An Agent-Based Approach to Decision Making	Complex Systems	October
T-13	Toroczkai	Gradient Networks	Renssellaer Polytechnic Institute	October
T-13	Toroczkai	Influence Networks	Boston University	October
T-13	Toroczkai	Gradient Networks: From Transport Efficiency in Scale-Free Graphs to Social Influence Structure	Condensed Matter Seminar	November
T-14	Bardenhagen	3D Simulations of the Dynamic Compaction of Granular Material & PBXs	TINC Meeting	June

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Group	Name	Title	Location	Month (2004)
T-14	Bardenhagen	MPM Calculations on Realistic Microstructures	LANL Energetic Materials Review	October
T-14	Bardenhagen	Numerical Simulation of the Full Densification of Foams	Mechanical Engineering Dept., U. of Washington	October
T-14	Bardenhagen	Numerical Simulation of Real Foams with PIC	Mechanical Engineering Dept., U. of Washington	November
T-14	Bardenhagen	Simulation of Large Granular Shear	35th Annual Conference of ICT, Workshop on Friction, Germany	June
T-14	Bardenhagen	Numerical Simulation of Full Densification of Foams	5th European Conf. on Foams, Emulsions & Applications, France	July
T-14	Brydon	Numerical Simulation of Real Foams with PC	Mechanical Eng. Dept., University of Washington, Seattle, WA	November
T-14	Brydon	MPM Calculations on Realistic Microstructures	2004 LANL Energetic Materials Review	November
T-14	Brydon	Numerical Simulation of the Full Densification of Foams	Mechanical Eng. Dept., University of Washington, Seattle, WA	November
T-14	Brydon	3D Simulations of the Dynamic Compaction of Granular Material and PBXs	Annual Conference of ICT, Energetic Materials - Structure and Properties	June
T-14	Chitanvis	Obtaining the Ginzburg-Landau Free Energy From Molecular Dynamics	Statistical Physics of Macromolecules, CNLS	April
T-14	Chitanvis	Nexus between Reactive MD Simulations and Continuum Reactive Burn Models	2004 LANL Energetic Materials Review	November
T-14	Dienes	Joing DOD/DOE Munitions Technology Development Program	TCG-1 Review Meting, Redstone Arsenal	July
T-14	Heim	Molecular Dynamics Models of High Explosives	2004 LANL Energetic Materials Review	November
T-14	Jaramillo	High-Explosive Properties from Classical Molecular Dynamics Simulations and Quantum-Chemical Computations	35th International ICT-Conference, Karlsruhe, Germany	June
T-14	Jaramillo	Atomistic Simulations of Liquid HMX	Gordon Research Conference on Energetic Materials, Tilton, NH	June
T-14	Jaramillo	Progress Toward Understanding Bicrystal Stress Wave Inhomogeneity	Gordon Research Conference on Energetic Materials, Tilton, NH	June
T-14	Kadau	Turbulence in Rayleigh-Taylor Instabilities and Pipe Flows with DSMC-CBA	Visit at LLNL, Livermore, CA	October
T-14	Kadau	Solitons and Condensed Matter Physics	Visit at UCSD, La Jolla, CA	April
T-14	Kadau	Simulation of Structural Transformations in Nanoparticles	3rd International Conference on Computational Modeling, Sicily	June
T-14	Kober	Issues and Directions for Modeling Energetic Materials	ASCI PI Meeting, Las Vegas, NV	March
T-14	Kober	Materials Aging Model	LANL Enhanced Surveillance Annual Review, Los Alamos	March
T-14	Kober	Progress Toward Understanding Bicrystal Stress Wave Inhomogeneity	Gordon Research Conference on Energetic Materials, Tilton, NH	June
T-14	Kober	Models of Estane and Other Polymers	LANL Energetic Materials Review	October
T-14	Kober	Viscoelastic Flows of Block Copolymers	LANL Energetic Materials Review	August
T-14	Kober	Molecular Dynamics Models of High Explosives	LANL Energetic Materials Review	October
T-14	Kober	Atomistic and Mesoscale Modeling of Mechanical and Chemical Processes in Energetic Materials	LANL Energetic Materials Review	October
T-14	Menikoff	Analysis of Wave Profiles for Single Crystal HMX	LANL Energetic Materials Review	August
T-14	Sewell	Obtaining the Ginzburg-Landau Free Energy From Molecular Dynamics	Statistical Physics of Macromolecules, CNLS	May

Group	Name	Title	Location	Month (2004)
T-14	Sewell	Obtaining the Ginzburg-Landau Free Energy from Molecular Dynamics	Statistical Physics of Macromolecules, CNLS	May
T-14	Sewell	Adventure in, and Issues with, Validation of Atomistics Simulations of High Explosives and Other Organic Materials	2004 CECAM Workshop on Materials Under Extreme Conditions... , Lyon, France	May
T-14	Sewell	Obtaining the Ginzburg-Landau Free Energy From Molecular Dynamics	Statistical Physics of Macromolecules, CNLS	May
T-14	Sewell	High-Explosive Properties from Classical Molecular Dynamics Simulations and Quantum-Chemical Computatation	35th International ICT-Conference, Karlsruhe, Germany	May
T-14	Sewell	Aspects of HE Theory, Simulation and Modeling at LANL	ASC/ASAP-Tri Lab Support Team Meeting, Salt Lake City, UT	April
T-14	Sewell	Present and Emerging Capabilities of Atomistic Simulation in Condensed Phase High Explosive	Workshop: Shear Stress Evaluation & Its Contributions to the Ignition of PBXs, Karlsrhue, Germany	June
T-14	Sewell	All-Electron Density-Functional Studies of Hydrostatic Compression of PETN and Beta-HMX	2004 Gordon Research Conference on Energetic Materials, Tilton, NH	June
T-14	Sewell	Progress Toward Understanding Bicrystal Stress Wave Inhomogeneity	Gordon Research Conference on Energetic Materials, Tilton, NH	June
T-14	Sewell	High-Explosive Properties from Classical Molecular Dynamics Simulations and Quantum Chemical Computations	35th Annual Conference of the ICT, Fraunhofer Institute, Karlsrhue, Germany	June
T-14	Sewell	Atomistic Calculations of High-Explosive Properties	Int'l Conf. New Models and Hydrocodes for Shock Wave Processes, College Park, MD	May
T-14	Shaw	Detonation Products EOS Theory	2004 LANL Energetic Materials Review	November
T-14	Strachan	High-Explosive Properties from Classical Molecular Dynamics Simulations and Quantum-Chemical Computations	35th International Annual Conference of ICT, Karksruhe, Germany	June
T-14	Strachan	Atomistic and Mesoscale Modeling of Mechanical and Chemical Processes in Energetic Materials	MMM-2 Talk, UCLA	September
T-14	Strachan	MGO:AB Initio Equation of State and Its Dislocation Properties from Molecular Dynamics Simulations	AGU 2004 Fall Meeting, San Francisco, CA	August
T-14	Strachan	Anisotropic Plasticity in NiAL Alloy Under Dynamical Loading	American Physical Society March Meeting, Los Angeles, CA	February
T-14	Strachan	First Principles-Based Multiscale Modeling of Ferroelectric Polymers	3rd International Conference, Computational Modeling & Simulation of Materials, Sicily, Italy	May
T-14	Strachan	High-Explosive Properties from Classical Molecular Dynamics Simulations and Quantum Chemical Computations	35th International ICT-Conference, Karlsruhe, Germany	June
T-14	Strachan	Atomistic and Mesoscale Modeling of Mechanical and Chemical Processes in Energetic Materials	Gordon Research Conference on Energetic Materials, Tilton, NH	June
T-14	Strachan	First Principles-Based Modeling of Ferroelectric Polymers: Computational Design of a PVDF-Based Nano-Actuator	Materials Research Society Spring Meeting, Boston, MA	November
T-14	Strachan	Atomistic and Mesoscale Modeling of Mechanical and Chemical Processes in Energetic Materials	Gordon Research Conference on Energetic Materials, Titlon, NH	June
T-14	Strachan	Energetic Materials with High I_{sp}: Atomistic Modeling	The PROM (DARPA Project) Kick-off Presentation, Caltech, Los Angeles, CA	July

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Group	Name	Title	Location	Month (2004)
T-14	Strachan	Multiscale Modeling of Ferroelectric Ceramics for Microwave Applications	The PROM (DARPA Project) Kick-off Presentation, Caltech, Los Angeles, CA	July
T-14	Strachan	Atomistic and Mesoscale Modeling of Mechanical and Chemical Processes: Towards Computational Materials Design	MMM-2, UCLA, Los Alamos	October
T-14	Strachan	Atomistic and Mesoscale Modeling of Mechanical and Chemical Processes in Energetic Materials	ASC Review Meeting, Caltech, Pasadena, CA	July
T-14	Strachan	Atomistic and Mesoscale Modeling of Mechanical and Chemical Processes in Molecular Crystals	2nd International Conference on Multiscale Materials Modeling, UCLA, Los Angeles, CA	September
T-14	Strachan	Atomistic and Mesoscale Modeling of Mechanical and Chemical Properties: Towards Computational Materials	Caltech, Pasadena, CA	October
T-14	Strachan	Thermal Decomposition of Nitromethane From Molecular Dynamics	Caltech-ASC Preview Meeting, Caltech, Pasadena, CA	October
T-14	Strachan	Atomistic and Mesoscale Modeling of Mechanical and Chemical Processes in Energetic Materials	2004 LANL Energetic Materials Review	November
T-14	Strachan	First Principles-Based Multiscale Modeling of Ferroelectric Polymers	3rd Int'l Conf. of Comp. Modeling and Simulations of Materials	May
T-14	Strachan	Multiscale Modeling of Nano-Structured Complexity in Ferroelectric Polymers	3rd Int'l Conf. of Comp. Modeling and Simulations of Materials	May
T-14	Tymczak	Numerical Algorithms for Linear Scaling Quantum Chemistry	11th International Congress on Computational and Appl.	July
T-14	Tymczak	Detonation Products EOS Theory	2004 LANL Energetic Materials Review	October
T-14	Tymczak	Linear Scaling Ab Initio Molecular Dynamics	COST - ENSCP, Paris, France	October
T-14	Welch	Obtaining The Ginzburg-Landau Free Energy From Molecular Dynamics	Statistical Physics of Macromolecules,CNLS	May
T-15	Chacon	A fully implicit 3D MHD Newton-Krylov algorithm: a numerical proof-of-principle	2004 International Sherwood Fusion Theory Meeting	April
T-15	Chacon	PIXIE3D: A Parallel, Implicit, Extended MHD 3D Code	46th Annual Mtg. of the Division of Plasma Physics of the APS	November
T-15	Chacon	On Preconditioning fully implicit Newton-Krylov algorithms for extended MHD	2004 SIAM Annual Meeting	July
T-15	Chacon	A Fully Implicit 3D MHD Newton-Krylov Algorithm: A Numerical Proof-of-Principle	International Sherwood Theory Conference	April
T-15	Daligault	Investigation of Ion Dynamics in Liquid Metals Through the Electron-Electron Dynamic Structure Factor	12th International Conference on Liquid and Amorphous Metals	November
T-15	Daligault	Variational Equation of State Model For Dense, High Energy Density Matter	APS Conference/DPP 04 Meeting	November
T-15	Daligault	Impact of Impurity Sedimentation on Cooling of White Dwarfs	APS Conference/DPP 04 Meeting	November
T-15	Daligault	Molecular Dynamics Studies of Neon Diffusion in Carbon-Oxygen White Dwarfs	5th Int'l Conf. on High-Energy Density Laboratory Astrophysics	March
T-15	Finn	Control of resistive wall modes in a cylindrical tokomak with radial and polidial magnetic field sensors	Workshop, Control of MHD Stability: back to the Basics	November
T-15	Finn	3D MHD simulations of large-scale structures of magnetic jets	46th Annual Conference of the Plasma Physics Division of APS	November
T-15	Finn	Magnetic and electrical helical drive for RFPs	46th Annual Conference of the Plasma Physics Division of APS	November

Group	Name	Title	Location	Month (2004)
T-15	Finn	Noise stabilization: markov analysis, circuits, and broken symmetrics	46th Annual Conference of the Plasma Physics Division of APS	November
T-15	Finn	Ideal and resistive plasma resistive wall modes and control: linear and nonlinear	46th Annual Conference of the Plasma Physics Division of APS	November
T-15	Finn	Issues related to MHD equilibrium reconstruction	46th Annual Conference of the Plasma Physics Division of APS	November
T-15	Finn	Control of resistive wall modes in a cylindrical tokamak with radial and poloidal magnetic field sensors	Workshop on Control of MHD Stability: back to Basics	November
T-15	Finn	Noise stabilization in nonlinear circuits	8th Experimental Chaos Conf.	June
T-15	Finn	Noise Stabilized random attractor	Seminar to Nonlinear Dynamics Group	June
T-15	Finn	Single Helicity and Quasi-Single Helicity States in a Reversed Field Pinches	Sherwood Theory Meeting	Apr03
T-15	Finn	Issues Related to MHD Equilibrium Reconstruction	Abstract for American Physical Society Division of Plasma Physics	November
T-15	Finn	Noise Stabilization: Markov Analysis, Circuits, and Broken Symmetries	APS Conference/DPP 04 Meeting	November
T-15	Finn	Ideal and Resistive Plasma Resistive Wall Modes and Control: Linear and Non-Linear	Abstract for American Physical Society Division of Plasma Physics	November
T-15	Finn	Magnetic and Electric Helical Drive for RFPS	APS Conference/DPP 04 Meeting	November
T-15	Glasser	Ion heating in a large aspect ratio FRC by rotating magnetic fields	2004 APS/DPP Conference	November
T-15	Glasser	Spectral Element Model of Extended MHD Plasma Phenomena	2004 APS/DPP Conference	November
T-15	Glasser	Lumped Parameter Model for Feedback Studies in Tokamaks	2004 APS/DPP Conference	November
T-15	Glasser	Adaptive Grid Generation for Magnetically Confined Plasmas	2004 APS/DPP Conference	November
T-15	Glasser	Computation of Singular MHD Instabilities with DCON	2004 Sherwood Fusion Theory Conference	April
T-15	Glasser	Application of the SEL Code to Edge Plasma Modeling	2004 Sherwood Fusion Theory Conference	April
T-15	Glasser	Computation of Singular MHD Instabilities with DCon	2004 Sherwood Fusion Theory Conference	April
T-15	Glasser	Adaptive Grid Generation for Magnetically Confined Plasmas	APS Conference/DPP 04 Meeting	November
T-15	Jones	Inclusion of Atomic/Molecular Physics in the Molecular Dynamics Simulation of Warm Dense Matter	APS Division of Plasma Physics Meeting	November
T-15	Jones	MHD Equilibrium Reconstruction from Correlated Experimental	APS Division of Plasma Physics Meeting	November
T-15	Jones	Determination of Plasma Equilibria in the Presence of Noise	Sherwood Fusion Theory Conference	April
T-15	Jones	Closures of the Vlasov-Poisson System	Sherwood Fusion Theory Conference	April
T-15	Lapenta	A Mechanism for the Attraction of Dust Particles in a Plasma	2004 Capri Dusty Workshop	June
T-15	Lapenta	Jeans Collapse of a System of Electron Emitting Dust Particles	Annual APS April Meeting	May
T-15	Lapenta	Role of the Lower Hybrid Drift Instability on the Onset of Magnetic Reconnection	Annual APS April Meeting	May
T-15	Lapenta	Study of Magnetic Bubble Expansion in Galaxy Clusters	Annual APS April Meeting	May

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Group	Name	Title	Location	Month (2004)
T-15	Lapenta	A comparison of observations and simulations for the extragalactic jet from the AGN in 3C303	Annual APS April Meeting	April
T-15	Lapenta	Study of the Formation of the Slow Solar Wind	Annual APS April Meeting	May
T-15	Lapenta	The onset of magnetic reconnection	Second Workshop on Thin Current Sheets	April
T-15	Lapenta	Multiscale Kinetic Simulation with the Implicit Moment Method	Conference on Sun-Earth Connections; Mutiscale Coupling in Sun-Earth Processes	February
T-15	Lapenta	Electrostatic Potential Around a Thermioncally Emitting Dust Particles	IV Congresso Italiano di Fisica del Plasma	January
T-15	Lapenta	Current Aligned Instabilities and the Rapid Onset of Magnetic Reconnection	Europe Geosciences Union, 1st General Assembly	April
T-15	Lapenta	3D MHD Simulations of Large-Scale Structures of Magnetic Jets	Annual Meeting APS Division of Plasma Physics, Miniconference on Astrophysical Jets	November
T-15	Lapenta	Simulation of Charging and Shielding of Dust Particles in a Plasma	2004 Capri Dusty Plasma Workshop	June
T-15	Lapenta	3D Reconnection: Onset and Topology	International Sherwood Theory Conference	April
T-15	Lapenta	Implicit Simulation of Kinetic Plasma Physics Problems	Seminar at Brown University	March
T-15	Lapenta	Kinetic Simulation of Dusty Plasmas	2004 Capri Workshop on Dusty Plasmas	June
T-15	Lapenta	Simulations Study of Rapid Onset of Magnetic Reconnection	Division of Plasma Physics Meeting	November
T-15	Lapenta	Theory and Simulation of the Shielding of Emitting Dust Particles	Division of Plasma Physics Meeting	November
T-15	Lapenta	A Comparison of Observations and Simulations in the Jets of the Radio Galaxies 3C303 and 3C274 (Messier 87)	Division of Plasma Physics Meeting	November
T-15	Lapenta	3D Magnetic Reconnection: Evolution of X-Lines and X-Points	Division of Plasma Physics Meeting	November
T-15	Lapenta	Collective Behavior of a System of Emitting Dust Particles	Division of Plasma Physics Meeting	November
T-15	Lapenta	Kinetic Simulations of Magnetic Reconnection in Plasma with Different Beta Values	Division of Plasma Physics Meeting	November
T-15	Lapenta	ASCI Hydrocomponents Miniproject Error Estimator	ASCI Hydrocomponents Miniproject Error Estimator	October
T-15	Lapenta	Particle in Cell Simulation of Combustion Synthesis of TIC Nanoparticles	16th Annual Rio Grande Symposium on Advanced Mat.	October
T-15	Lapenta	High Performances on Simulation of Developmental Biology on a Hybrid Grid	LACSI Symposium	October
T-15	Lapenta	Kinetic Simulations of Magnetic Reconnection in Plasma with Different Beta Values	American Geophysical Union Fall Meeting	December
T-15	Lapenta	Simulation Study of Rapid Onset of Magnetic Reconnection	American Geophysical Union Meeting	December
T-15	Lapenta	3D Magnetic Reconnection: Evolution of X-Lines	American Geophysical Union Fall Meeting	December
T-15	Lapenta	3D MHD Simulation and the Role of Null Points in Coronal Reconnection	American Geophysical Union Fall Meeting	December
T-15	Lapenta	Design and Development of High Performances Parallel Particle in Cell (PIC)	Los Alamos Computer Science Institute Meeting	October

Group	Name	Title	Location	Month (2004)
T-15	Lapenta	Collective Behavior of a System of Emitting Dust Particles	American Geophysical Union Fall Meeting	December
T-15	Lukin	Spectral Element Modeling of Extended MHD Plasma Phenomena	APS Conference/DPP 04 Meeting	November
T-15	Murillo	Conformational Variability in the Protein Kinase A Phosphoryl Transfer	48th Annual Meeting of the Biophysical Society	February
T-15	Murillo	Inclusion of Atomic/Molecular Physics in the Molecular Dynamics Simulation of Warm Dense Matter	APS Conference/DPP 04 Meeting	November
T-15	Nebel	Experimental and Theoretical Studies of Electrostatic Confinement	2004 International Sherwood Fusion and Energy Conference	April
T-15	Nebel	An Electrostatic Confinement Experiment to Explore the Periodically Oscillating Plasma Sphere	TOFE Meeting	September
T-15	Simakov	Application of the Spectral Element Code (SEL) to Edge Plasma Modeling	International Sherwood Fusion Theory Conference	Apr03
T-15	Simakov	Development of the SEL Code and Its Application to the Magnetic Reconnection Problem	International Sherwood Fusion Theory Conference	April
T-15	Simakov	An Ion Drift Kinetic Equation to the Second Order in the Gyroradius Expansion	APS Conference/DPP 04 Meeting	November
T-15	Tang	Force-free magnetic relaxation in driven plasma	APS/DPP 2004	November
T-15	Tang	A laboratory helicity injection perspective of plasma jet formation by a conducting Keplerian accretion disk	2004 American Physical Society Division of Plasma Physics	November
T-15	Tang	Chandresekhar Equiliberia of Compact Toroids with Alfvenic Flows	Sherwood Fusion Energy Conference	April
T-15	Tang	Astrophysical Magnetic Helicity Injection: Jets, Lobes, and LAPD-U	International Sherwood Theory Conference	April
T-15	Tang	MHD Jet and Outflow Driven by an Accretion Disk	Bangg Conference on Cores, Disks, and Outflows in Low and High Mass Star	July
T-15	Tang	A Laboratory Helicity Injection Perspective of Plasma Jet Formation By A Conducting Keplerian Accretion Disk	APS Conference/DPP 04 Meeting	November
T-15	Tang	Force-Free Magnetic Relaxation in Driven Plasmas	APS Conference/DPP 04 Meeting	November
T-15	Tang	Force-Free Magnetic Relaxation in a Driven Compact Toroid	US-Japan Exchange 2004	September
T-15	Tang	Magnetic relaxation of driven plasmas	Center for Integrated Plasma Studies Weekly Seminar	November
T-15	Tang	Force-free magnetic relaxation in a driven compact toroid	US-Japan Exchange 2004 on New Directions and Physics for Compact Toroids	September
T-15	Tang	Astrophysical magnetic helicity injection: jets, lobes, and LAPD-U	2004 International Sherwood Fusion Theory Conference	April
T-15	Weisheit	High Redshift Formation of Star Clusters by Galaxy Outflows	Workshop on Chemical Enrichment of the Early Universe	August
T-15	Weisheit	Free Radiation in Strongly Coupled Plasmas	APS Division of Plasma Physics Meeting	November
T-15	Weisheit	Free-Free Radiation in Strongly Coupled Plasmas	APS Conference/DPP 04 Meeting	November
T-16	Bonneau	Microscopic Calculations of Fission Barriers and Spin of Fission Fragments	Fall DNP 2004 Meeting	October
T-16	Buervenich	Progress in Extended Lagrangians for Relativistic Point-Coupling Models	APS April Meeting	May

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Group	Name	Title	Location	Month (2004)
T-16	Buervenich	Relativistic Point-Coupling Models for Finite Nuclei	Workshop on Relativistic Density Functional Theory for Nuclear Structure	September
T-16	Buervenich	Fulleren-Structure in Superheavies, Nuclei Containing Antimatter and Cold Compression	Intl. Symposium on Exotic Nuclei	July
T-16	Buervenich	Nuclear Ground-State Observables from Relativistic Mean-Field Models: Masses, Densities, Radii, Single-Particle Levels	Intl. Conf. on Nuclear Data for Science & Tech ND2004	September
T-16	Carlson	Multiple Facets of Few-Nucleon Physics	Old Dominion University Physics Colloquium	April
T-16	Carlson	Superfluid Fermions from Atomic Gases to Neutron Stars	Oak Ridge National Lab. Seminar	November
T-16	Carlson	Status of the International Neutron Cross Section Standard File	Intl. Conf. on Nuclear Data for Science & Tech. ND2004	September
T-16	Carlson	Microscopic Approaches to Light Nucleus Reactions	Intl. Conf. on Nuclear Data for Science & Tech. ND2004	September
T-16	Carlson	Parity Violation in Few Nucleon Systems	Electron-Nucleus Scattering VIII	June
T-16	Carlson	Dilute Fermi Gases	Seminar Michigan State Universtiy	October
T-16	Carlson	Parity Violation in Few-(Mostly Two) nucleon Systems	Electron-Nucleus Scattering VIII	June
T-16	Chadwick	ASCI nuclear data cross sections for simulations	X-4 seminar, LANL	January
T-16	Chadwick	Nuclear reaction models and data	Dennis Kovar, DOE/SC	March
T-16	Chadwick	ASC needs for experimental data from LANSCE	McClelland's EAV review committee	June
T-16	Chadwick	Comparison of New LANL/T-16 Yttrium Evaluated Cross Sections with NTS Measurements (U)	NEDPEC 2003	January
T-16	Chadwick	Use of Americium Delta-A (240/241 Am) and 242/241 Am as Metrics or Primary Performance in Attribution (U)	NEDPEC 2003	January
T-16	Chadwick	Plutonium Nuclear Cross Section (U)	LANSCE Advisory Committee	March
T-16	Chadwick	2004 Int'l Conference on Nuclear Data for Science & Technology: A Summary	DNP Fall Meeting	October
T-16	Chadwick	Surrogate Reaction	Nuclear Reactions on Unstable Nuclei and Surrogate Reaction Technique	January
T-16	Cowell	Neutrino Interactions in Dense Matter	Gordon Research Conf. Nuclear Chemistry	April
T-16	Friar	The Nuclear Physics of Atomic Hyperfine Structure	Hydrogen Atom III - Intl. Conf on Precision Physics of Simple Atomic Systems	August
T-16	Friar	The Nuclear Physics of Precise Atomic Spectroscopy	Argonne National Lab. Seminar	October
T-16	Gibson	Inelastic Electron Scattering to the First Zero-Plus Excited State of Helium-4	Seminar KVI, University of Groningen	June
T-16	Gibson	Strangeness Physics, from KEK to J-PRAC	3rd Int'l Workshop on Nuclear & Particle Physics at J-PRAC (NP04)	August
T-16	Gibson	Anomalous Magnetic Moment Contributions to Nucleon-Nucleon Bremsstrahlung in the Soft-Photon Approximation	European Few Body XIX Conference	August
T-16	Gibson	Four-Body Calculation of the First 0+ Excited State of ^{4}He	European Few Body XIX Conference	August
T-16	Gibson	Highlights of the KEK Strangeness Program	Int'l. Workshop on Strangeness Nuclear Physics SNP2004	July

Group	Name	Title	Location	Month (2004)
T-16	Gibson	Highlights of the KEK Strangeness Program Since 2000	International Workshop on Strangeness Nuclear Physics	June
T-16	Ginocchio	Pseudospin as a Relativistic Symmetry in Nuclei	Computational and Group Theoretical Methods in Nuclear Physics	March
T-16	Ginocchio	Quantum Mechanics on a Sphere	Beauty of Mathematics in Science; The Intellectual Path of J Q Chen	August
T-16	Ginocchio	Pseudospin Symmetry in Spherical and Deformed Nuclei	Key Topics in Nuclear Structure, 8th International Spring Seminar on Nuclear Physics	May
T-16	Ginocchio	Why is Pseudospin Symmetry Conserved? Testing the nucleon-nucleon interaction for pseudospin symmetry	Blueprints for the Nucleus: From First Principles to Collective Motion	May
T-16	Goldman	Non-Nuclear Multiquark States: Dibaryons and Pentaquarks from a Successful Nuclear Quark Model	Int. Conf. on Mesons and Nucleons, MENU2004, Beijing	August
T-16	Goldman	MultiQuark States	Conf. on Quark Nuclear Physics 2004, U. of Indiana, Bloomington	May
T-16	Goldman	Dibaryons & Penta-quarks:	Mesons and Nucleons 2004	August
T-16	Goldman	Multi-quark States	Conf. on Quark Nuclear Physics	May
T-16	Goldman	Neutrino Clouds of Source of Dark energy	Univ. of Kansas	July
T-16	Goldman	Much Ado About Almost Nothing: Neutrino Masses and Mixings	Department of Energy, Office of Nuclear Physics	September
T-16	Goldman	Much Ado About Almost Nothing: Neutrino Masses and Mixings	University of Kansas	September
T-16	Goldman	Much Ado About Almost Nothing: Neutrino Masses and Mixings	Florida Atlantic University	September
T-16	Goldman	Narrow spin-3 Isospin-0 Diabaryon	Meson-Nucleon Physics and the Structure of the Nucleon	August
T-16	Hale	Applications of R-matrix theory to light-element astrophysical reactions	Institute for Theoretical Physics III of the U. of Erlangen-Nurember	July
T-16	Hale	Level Structure and Scattering in Light Nuclei	Future Theory Developments for Astrophysics and Stockpile Stewardship	October
T-16	Hale	New Results for the 6Li and 10B Neutron Standard Cross Sections from R-Matrix Analyses and Microscopic Calculations for the 7Li and 11B Systems	Int'l. Conf. on Nuclear Data for Science & Tech. ND2004	September
T-16	Hale	Neutron Standard Cross Sections for 1H and 6Li from R-Matrix Analyses and Microscopic Calculations for the N-N and 7Li Systems	Int'l. Conf. on Nuclear Data for Science & Tech. ND2004	September
T-16	Herczeg	CP-Violating Electron-Nucleon Interactions and CP-Violation Beyond the Standard Model	Fourth Tegernsee International Conference on Particle Physics Beyond the Standard Model	April
T-16	Herczeg	Beta Decay Beyond the Standard Model	Int'l Workshop on Fundamental Interactions, European Center for Theoretical Studies in Nuclear Physics and Related Areas (ECT*)	June
T-16	Kawano	Neutron Capture Cross Section	JNDC, Fission Product Nuclear Data Evaluation Working Group Meeting, Tokyo, Japan	June
T-16	Kawano	Combine the ORNL (resonance) and LANL (above resonance) Covariance Data for Gd	Los Alamos Seminar	May
T-16	Kawano	Nuclear Data Evaluations for AFCI	CI Transmutation Working Group Meeting, Albuquerque, NM	April

Appendix D–Presentations and Invited Talks

Group	Name	Title	Location	Month (2004)
T-16	Kawano	Neutron capture process for astrophysics	Workshop on new opportunities and challenges with DANCE, Santa Fe, NM	February
T-16	Kawano	Spin Distributions in the Pre-Equilibrium Process	Nuclear Reactions on Unstable Nuclei and the Surrogate Reaction Technique Workshop	January
T-16	Kawano	Evaluation of ^{99}Tc Capture Cross Sections in the Unresolved Resonance Regio	Workshop on Nuclear Data for the Transmutation of Nuclear Waste, GSI-Darmstadt, Germany	September
T-16	Kawano	Subgroup 20: Convariance Matrix Evaluation and Process in the Resolved/Unresolved Resonance Regions	WPEC Meeting	May
T-16	Kawano	Nuclear Data Evaluations for Americium Isotopes	Int'l. Conf. on Nuclear Data for Science & Tech.	October
T-16	Kawano	Methodology of Covariance Evaluation for Th and U Nuclear Data	Evaluated Nuclear Data for the Thorium-Uranium Fuel Cycle Mtg.	December
T-16	Kawano	Subgroup 20: Covariance Matrix Evaluation and Process in the Resolved/Unresolved Resonance Regions Status Report 2004	WPEC Meeting	May
T-16	Lemaire	Correlated Neutron Emission in Fission with Monte-Carlo Methods	The Monte Carlo Method: Versatility Unbounded in a Dynamic Computing World	April
T-16	Lemaire	Monte Carlo Simulations of the Statistical Decay of Fission Fragment in Thermal n+^{235}U Reaction and Spontaneous Fission of ^{252}Cf	Intl. Conf. on Nuclear Data for Science & Technology ND2004	September
T-16	Lemaire	Correlated Neutron Emission in Fission	Intl. Conf. on Nuclear Data for Science & Technology ND2004	September
T-16	Liu	A charge-conjugation-invariance constrained Pomeron-quark vertex	10th International Baryons Conference	October
T-16	Liu	Probing nuclear correlations with quasifree (e,e'p) and (e,e'd) reactions	APS Spring Meeting, Denver, CO	May
T-16	Liu	Quasi-Free Scattering	Seminar for proton radiography groups at Los Alamos	March
T-16	Lynn	The Role of Intermediate Structure and Level Fluctuations in Fission Cross Section Calculations	Nuclear Reactions on Unstable Nuclei and the Surrogate Reaction Technique Workshop	January
T-16	Lynn	Theory in Evaluation of Actinide Fission and Capture Cross Sections	Intl. Conf. on Nuclear Data for Science & Tech. ND2004	September
T-16	MacFarlane	How Accurately Can We Calculate Thermal Systems	LLNL	April
T-16	MacFarlane	Thermal Neutron Scattering Data	Intl. Conf. Nuclear Data for S&T	September
T-16	MacFarlane	Testing New Actinide Cross Sections Proposed for ENDF/B-VII	Intl. Conf. Nuclear Data for S&T	September
T-16	MacFarlane	Analysis and Evaluation of Neutron Reactions on ^{238}U	Intl. Conf. Nuclear Data for S&T	September
T-16	MacFarlane	Systematic Analysis of Uranium Isotopes	Intl. Conf. Nuclear Data for S&T	September
T-16	MacFarlane	Nuclear Data Evaluations for Americium Isotopes	Intl. Conf. Nuclear Data for S&T	September
T-16	MacFarlane	Miscellaneous Data Testing Results from Los Alamos	Cross Section Evaluation Working Group Data Testing Comm. Mtg.	May
T-16	MacFarlane	Recent Fast Data Testing Results from Los Alamos	Cross Section Evaluation Working Group Data Testing Comm. Mtg.	May
T-16	MacFarlane	Recent Thermal Data Testing Results from Los Alamos	Cross Section Evaluation Working Group Data Testing Comm. Mtg.	May
T-16	MacFarlane	Testing New Actinide Cross Sections Proposed for ENDF/B-VI	Intl. Conf. on Nuclear Data for Science & Tech. ND2004	September

Group	Name	Title	Location	Month (2004)
T-16	Madland	Nuclear Ground-State Observables from Relativistic Mean-Field Models: Masses, Densities, Radii, Single-Particle Levels	Intl. Conf. Nuclear Data for S&T	October
T-16	Madland	Systematic Analysis of Uranium Isotopes	Intl. Conf. Nuclear Data for S&T	October
T-16	Madland	Correlated Neutron Emission in Fission	Monte-Carlo 2005 Topical Meeting	April
T-16	Madland	Correlated Neutron Emission in Fission	Fall Meeting APS	October
T-16	Madland	Exploring High-dimensional Fission Potential-Energy Landscapes	APS April Meeting	May
T-16	Madland	Progress in Extended Lagrangians for Relativistic Point-Coupling Models	APS April Meeting	January
T-16	Madland	Self-Consistent Mean-Field Models and their Applications to Superheavy Nuclei	Structure & Dynamics of Elem. Matter, NATO Study Inst.	October
T-16	Möller	Heavy-Element Stability and Decay	Los Alamos Summer School	July
T-16	Möller	Exploring high-dimensional fission potential-energy surfaces: important issues and lessons learned	Intl. Workshop on Theoretical Description of the Nuclear Large Amplitude Collective Motion	March
T-16	Möller	Exploring High-Dimensional Fission Potential-Energy Landscapes	Annual APS Spring Meeting	May
T-16	Möller	Global Studies of Shape Isomerism	DNP Fall Meeting 2004	October
T-16	Möller	Calculation of Fission Barriers for Nuclei with A>190 for Astrophysical Application	DNP Fall Meeting 2004	October
T-16	Möller	The Macroscopic-Microscopic Method 101: Achievements, Capabilities and Limitations	T-16 Seminar	July
T-16	Möller	Global Nuclear Structure Calculations for Astrophysics, Recent Developments	Chemical Enrichment of the Early Universe	August
T-16	Möller	Musings on the Discovery of Element Z+113 and Model Predictions of its Decay Properties	NPP Seminar	September
T-16	Möller	Structure Models Relevant for R-Process	USNDP Brookhaven National Lab.	November
T-16	Möller	Mass Models and Nuclear Structure Applications for Astrophysics	Michigan State University Seminar	November
T-16	Möller	Global Nuclear Structure for Astrophysics, Recent Developments	Chemical Enrichment of the Early Universe	June
T-16	Page	Light nuclei reactions, update	Cross Section Evaluation Working Group and US Nuclear Data Program Meetings	November
T-16	Page	Hybrids, Molecules and Pentaquarks	Workshop on Heavy Quark and Exotics Spectroscopy	May
T-16	Page	R-Matrix Theory and Applications	Seminar LANL	April
T-16	Page	R-Matrix Theory and Nuclear Applications	Seminar LLNL	April
T-16	Page	^{8}Be Nuclear Data Evaluation	Conf. on Nuclear Data for Science & Tech. (ND2004)	September
T-16	Page	Hybrid and Conventional Baryons in the Flux-Tube and Quark Models	10th Intl. Symposium on Meson-Nucleon Physics & the Structure of the Nucleon	August
T-16	Page	A=8 Reactions, Charged Particle Reactions (Mainly)	Cross Section Evaluation Working Group (CSWEG)	November
T-16	Page	P + 13C Rightarrow Source Reaction for Interrogation & Photonuclear Work	Cross Section Evaluation Working Group (CSWEG)	November
T-16	Page	Hybrid and conventional Baryons in the Flux Tube and Quark Models	Meson-Nucleon Physics and the Structure of the Nucleon	August
T-16	Pitcher	Use of a Cold Be Reflector-Filter at the Lujan Center	IAEA Specialist's Meeting	May
T-16	Pitcher	The AFCI Nuclear Data Program	PHYSOR 2004, Chicago, IL	April

Appendix D–Presentations and Invited Talks

Group	Name	Title	Location	Month (2004)
T-16	Pitcher	Nuclear Cross Section Measurements within the Advanced Fuel Cycle Initiative	PHYSOR 2004, Chicago, IL	April
T-16	Pitcher	Lujan Center Cold Source Upgrade Studies	IAEA Technical Meeting	May
T-16	Pitcher	Progress on Transmutation Physics within the Advanced Fuel Cycle Initiative	AFCI Semi-Annual Review	September
T-16	Pitcher	Gadolinium-148 Production Cross Sections Measurements for 600- 800-MeV Protons	Shielding Aspects of Accelerators, Target, ... SATIF-7	May
T-16	Reddy	Neutrino Opacities and Emissivities in Nuclear Matter: the Current State of the Art and Future Challenges	Invited talk at the INT workshop on Open Issues in Understanding Core Collapse Supernovae	June
T-16	Reddy	Neutron Stars, Supernova and Phases of Dense Quark Matter	INT Workshop on QCD and Dense Matter: From Lattices to Stars	March
T-16	Reddy	Neutron Stars, Supernova and Phases of Dense Quark Matter	Invited talk, Quark Matter 2004	January
T-16	Reddy	Equation of State and Neutrino Opacity of Dense Stellar Matter	First Workshop on The R-process	January
T-16	Reddy	Superconducting Quark Matter in Compact Stars	LBNL Workshop on High Density	July
T-16	Reddy	The Micro-Physics of Neutrino Transport at Extreme Density	Compact Stars: Quest for New States of Dense Matter	November
T-16	Reddy	Equation of State and Neutrino Opacity of Dense Stellar Matter	RIA Workshop	January
T-16	Reddy	Matter at Extreme Density and Its Role in Neutron Stars and Supernova	Recent Progress in Many-Body Theories	August
T-16	Reddy	Matter at Extreme Density and Its Role in Supernova and Neutron Stars	Seminar Michigan State	November
T-16	Rupak	Workshop on Theories of Nuclear Forces and Nuclear Systems	Institute for Nuclear Theory, Seattle, WA	September
T-16	Rupak	Gapless superfluidity	12th Int'l Conf. on Recent Progress in Many-Body Theories, Santa Fe	September
T-16	Rupak	PT for lattice QCD at \mcal O(a^2)	Institute for Nuclear Theory, Seattle, WA	September
T-16	Rupak	Topics in dilute fermi and bose systems	Los Alamos Seminar	March
T-16	Rupak	Nuclear Physics from lattice QCD: Finite lattice spacing and volume effects	Seminar University of Washington	September
T-16	Rupak	Pairing in asymmetric fermi system: 2-flavor quark matter	12th Int'l Conf. on Recent Progress in Many-Body Theories, Santa Fe	September
T-16	Talou	Experimental and theoretical evaluation of ^{193}Ir (n,n') ^{193}Ir isomer population cross section	Workshop on Surrogate Reactions Technique, Asilomar, CA	January
T-16	Talou	Nuclear model codes report	WPEC Subgroup A and WPEC Mtg. in Aix-en-Provence, France	May
T-16	Talou	New Evaluation of Am Isotopes for AFCI	AFCI Semi-Annual Review	September
T-16	Talou	The McGNASH Nuclear Reaction Code: Progress Status	Intl. Conf. on Nuclear Data for Science & Tech. (ND2004)	September
T-16	Talou	The Nuclear Reaction Code McGnash	Intl. Conf. on Nuclear Data for Science & Tech. (ND2004)	September
T-16	Talou	Subgroup A: Nuclear Model Codes Report to the Sixteenth Meeting of the WPEC	Sixteenth Meeting of WPEC	May
T-16	Talou	LANL Contribution to the IAEA RIPL-3 Coordinated Research Program	RIPL-3 Coordinated Research Program	June
T-16	Young	Systematic Analysis of Uranium Isotopes	Intl. Conf. on Nuclear Data for Science & Technology ND2004	September
CNLS	Camacho	Photoreceptors Interactions Via a Trophic Pool	Job Presentation	February
CNLS	Camacho	ODE Models in Physiology and Sociology	Summer Colloquium	June

Group	Name	Title	Location	Month (2004)
CNLS	Camacho	Socila Dynamics of Focus Groups	Colloquium	August
CNLS	Huang	A Systematic Study of Genetic Algorithms with Genotype Editing	Genetic & Evolutionary Computation Conference	June
CNLS	Huang	A Coevolutionary Agent Based Model of Genotype Editing	Symposium for Understanding Complex Systems	May
CNLS	Kos	Forster Energy Transfer from a Quantum . . . Transport in Semiconductors	APS March Meeting	March
CNLS	Ramaprabhu	Dependence of the Rayleigh-Taylor Froude Number on the Density Ration	56th Annual Mtg. of the Division of Fluid Dynamics of the APS	November
CNLS	Ramaprabhu	Visualization of Rayleigh-Taylor Instability	9th Int'l Workshop on the Physics of Compressible Turbulent Mixing	July
CNLS	Ramaprabhu	An Overview of Rayleigh-Taylor Experiments at Texas A&M University	9th Int'l Workshop on the Physics of Compressible Turbulent Mixing	July
CNLS	Ramaprabhu	Dependence of Self-similar Rayleigh-Taylor Growth on Initial Conditions	9th Int'l Workshop on the Physics of Compressible Turbulent Mixing	July
CNLS	Ramaprabhu	Progress with Turbulent Mixing by 9th Int'l Workshop on the Physics of Compressible Turbulent Mixing	Stewardship Science Academic Alliances Program Symposium	March

Appendix E

Awards and Honors

Appendix E–Awards and Honors

Group	Name		Award	Bestowed By
T-DO	Bishop	Alan	Senior Fellow	Humboldt Foundation (Germany)
T-DO	Bishop	Alan	Laboratory Fellow	LANL
T-DO	Paz	Juan	Guggengheim Fellowship	John Simon Guggenheim Memorial Foundation
T-DO	Younger	Stephen	Medal	Secretary of Defense Rumsfeld
T-DO	Zurek	Wojciech	Phi Beta Kappa Visiting Scholar	Phi Beta Kappa Society
T-4	Abdallah	Joseph	Los Alamos Achievement Award	LANL
T-4	Collins	Lee	Los Alamos Achievement Award	LANL
T-4	James	Daniel	Los Alamos Achievement Award	LANL
T-4	Keady	John	Defense Programs Award of Excellence	NNSA
T-4	Magee	Norman	Los Alamos Achievement Award	LANL
T-6	Heger	Alexander	Associate	University of Chicago
T-6	Herwig	Falk	Ludwig Biermann Award	German Astronomical Society
T-6	Holz	Daniel	Frontiers of Science invitee	Royal Society/ National Academy
T-6	Jungman	Gerard	Defense Programs Award of Excellence	NNSA
T-6	Mihaila	Bogdan	ICAM Senior Fellowship	Institute for Complex Adaptive Matter
T-6	Warren	Michael	Los Alamos Achievement Award	LANL
T-7	Berndt	Markus	Los Alamos Achievement Award	LANL
T-7	Berndt	Markus	Los Alamos Achievement Award	LANL
T-7	Garimella	Rao	Los Alamos Achievement Award	LANL
T-7	Jiang	Yi	Outstanding Mentor Award	LANL
T-10	Blinov	Mikhail	2004 R&D 100 Nomination	LANL
T-10	Dahari	Harel	Award for the most innovative abstract	IsASL
T-10	Dahari	Harel	Fulbright postdoctoral scholarship	
T-10	Faeder	James	BioNetGen software	LANL/2004 R&D 100 competition
T-10	Goldstein	Byron	Los Alamos Laboratory Fellow	LANL
T-10	Korber	Bette	Department of Energy EO Lawrence Award	DOE
T-10	Macken	Catherine	Travel Fellowship to attend the 3rd McLaughlin Symposium	NIH-NIAD
T-10	Ribeiro	Ruy	Travel Award	Foundation for Retrovirology and Human Health
T-10	Ribeiro	Ruy	Postdoctoral Publication Prize-Honorable Mention	LANL
T-10	Sanbonmatsu	Kevin	Institutional Computing Award	LANL
T-11	Abanov	Artem	Oppenheimer Distinguished Postdoctoral Fellow	LANL
T-11	Albers	Robert	Adjunct Professor of Physics	Ohio State University
T-11	Batista	Cristian	Postdoctoral Publication Prize in Theoretical Physics	Leon Heller - LANL

Group	Name		Award	Bestowed By
T-11	Mozyrsky	Dima	LANL Achievement Award	LANL
T-11	Nussinov	Zohar	The Swedish Council Award	Swedish Council
T-11	Saxena	Avadh	Adjunct Professor	University of Barcelona, Physics
T-11	Zhu	Jian-Xin	Postdoctoral Distinguished Performance Award	LANL
T-12	Martin	Richard	2004 Alumni Fellow	Kansas State University
T-12	Reichhardt	Cynthia	Los Alamos Achievement Award	LANL
T-13	Ben-Naim	Eli	Fellow	Institute of Physics
T-13	Hastings	Matthew	Los Alamos Achievement Award	LANL
T-16	Carlson	Joseph	Fellow	LANL
T-16	Cowell	Shannon	Felix T. Adler Fellowship	UIUC
T-16	Kawano	Toshihiko	Defense Programs Award of Excellence	NNSA
T-16	Kawano	Toshihiko	Defense Programs Award of Excellence	NNSA
T-16	Kawano	Toshihiko	Best Paper Award	Atomic Energy Society of Japan
T-16	MacFarlane	Robert	Defense Programs Award of Excellence	NNSA
T-16	Madland	David	Los Alamos Achievement Award	T Division
T-16	Madland	David	Defense Programs Award of Excellence	Stockpile Stewardship Program
T-16	Sierk	Arnold	Los Alamos Achievement Award	T Division
T-16	Steiner	Andrew	Dissertation Award in Nuclear Physics	American Physical Society
T-16	Talou	Patrick	Defense Programs Award of Excellence	NNSA

Appendix F

Membership in Professional Organizations

Appendix F–Membership in Professional Organizations

Group	Name	Position	Organization
T-DO	Bishop, A.	Fellow	American Physical Society
T-DO	Bishop, A.	Member	UK Institute of Physics
T-DO	Chen, S. P.	Member	American Physical Society
T-DO	Chen, S. P.	Member	American Society for Metals
T-DO	Dalvit, D.	Member	American Physical Society
T-DO	Strottman, D.	Fellow	American Physical Society
T-DO	Zurek, W.	Member	Santa Fe Institute
T-DO	Zurek, W.	Associate	Canadian Institute for Advanced Research
T-DO	Zurek, W.	Member	American Association for the Advancement of Science
T-DO	Zurek, W.	Member	American Physical Society
T-1	Chisolm, E.	Member	American Physical Society
T-1	Clements, B.	Member	Dymat Association
T-1	Clements, B.	Member	American Physical Society
T-1	Crockett, S.	Member	American Physical Society
T-1	Greeff, C.	Member	Topical Group on Shock Compression of Condensed Matter
T-1	Greeff, C.	Member	American Physical Society
T-1	Kuprat, A.	Member	Society for Industrial and Applied Mathematics
T-1	Kuprat, A.	Member	American Physical Society
T-1	Mas, E.	Member	American Physical Society
T-1	Niklasson, A.	Member	American Physical Society
T-1	Plohr, J.-Y.	Member	American Physical Society
T-1	Rudin, S.	Member	American Physical Society
T-1	Wallace, D.	Fellow	American Physical Society
T-1	Wills, J.	Member	American Physical Society
T-3	Cline, M.	Member	American Institute of Aeronautics and Astronautics
T-3	Hunke, E.	Member	American Geophysical Union
T-3	Johnson, N.	Member	American Physical Society
T-3	Jones, P.	Member	American Meteorological Society
T-3	Jones, P.	Member	American Geophysical Union
T-3	Knoll, D.	Member	Society for Industrial and Applied Mathematics
T-3	Knoll, D.	Member	American Physical Society
T-3	Knoll, D.	Member	American Geophysical Union
T-3	Lipscomb, W.	Member	American Geophysical Union
T-3	Moses, R.	Member	American Geophysical Union
T-3	Moses, R.	Member	American Physical Society
T-3	Padial-Collins, N.	Member	American Physical Society
T-3	Sahota, M.	Member	California Alumni Association

Group	Name	Position	Organization
T-3	Sahota, M.	Member	UC Engineering Alum. Society
T-3	Sahota, M.	Member	Sigma Xi Scientific Research Society
T-3	Sahota, M.	Member	American Society of Mechanical Engineers
T-3	Tonks, M.	Member	American Society of Mechanical Engineers
T-3	Vanderheyden, W.	Member	American Institute of Chemical Engineers
T-3	Zou, Q.	Member	Society for Industrial and Applied Mathematics
T-4	Cohen, J.	Fellow	American Physical Society
T-4	Cohen, J.	Member	Sigma Xi Scientific Research Society
T-4	Colgan, J.	Member	Institute of Physics
T-4	Colgan, J.	Member	American Physical Society
T-4	Collins, L.	Member	Society for Industrial and Applied Mathematics
T-4	Collins, L.	Member	American Association for the Advancement of Science
T-4	Collins, L.	Member	American Physical Society
T-4	Csanak, G.	Fellow	American Physical Society
T-4	Cucchietti, F.	Member	American Physical Society
T-4	Hakel, P.	Member	American Physical Society
T-4	Hu, S.	Member	Sigma Xi Scientific Research Society
T-4	Hu, S.	Member	American Physical Society
T-4	James, D.	Member	Southwestern Quantum Information Technology
T-4	James, D.	Fellow	Optical Society of America
T-4	Keady, J.	Member	American Physical Society
T-4	Kilcrease, D.	Fellow	British Interplanetary Society
T-4	Kilcrease, D.	Member	American Physical Society
T-4	Sherrill, M.	Member	American Physical Society
T-4	Vrinceanu, D.	Member	American Physical Society
T-6	Cox, A.	Member	International Astronomical Union
T-6	Cox, A.	Member	American Astronomical Society
T-6	Heger, A.	Member	American Physical Society
T-6	Heger, A.	Member	German Physical Society
T-6	Heger, A.	Member	American Astronomical Society
T-6	Heger, A.	Member	American Association for the Advancement of Science
T-6	Herwig, F.	Member	American Astronomical Society
T-6	Hills, J.	Member	Tsunami Society
T-6	Hills, J.	Member	American Association for the Advancement of Science
T-6	Hills, J.	Member	Royal Astronomical Society of London
T-6	Hills, J.	Member	International Astronomical Union
T-6	Hills, J.	Fellow	American Physical Society
T-6	Hills, J.	Member	American Astronomical Society

Appendix F–Membership in Professional Organizations

Group	Name	Position	Organization
T-6	Holz, D.	Member	Union of Concerned Scientists
T-6	Holz, D.	Fellow	Sigma Xi Scientific Research Society
T-6	Holz, D.	Member	American Physical Society
T-6	Holz, D.	Member	American Astronomical Society
T-6	Jungman, G.	Member	American Mathematical Society
T-6	Mihaila, B.	Member	American Physical Society
T-6	Timmes, F.	Member	Astronomical Society of the Pacific
T-6	Timmes, F.	Member	American Physical Society
T-6	Timmes, F.	Member	American Institute of Physics
T-6	Timmes, F.	Member	American Astronomical Society
T-6	Warren, M.	Member	Institute of Electrical and Electronics Engineers
T-6	Warren, M.	Member	American Astronomical Society
T-7	Berndt, M.	Member	US Association of Computational Mechanics
T-7	Berndt, M.	Member	Society for Industrial and Applied Mathematics
T-7	Beyer, W.	Member	Canadian Applied Mathematics Society
T-7	Beyer, W.	Member	London Mathematical Society
T-7	Beyer, W.	Member	American Mathematical Society
T-7	Chartrand, R.	Member	American Association for the Advancement of Science
T-7	Chartrand, R.	Member	Society for Industrial and Applied Mathematics
T-7	Chartrand, R.	Member	American Mathematical Society
T-7	Dendy, J.	Member	Society for Industrial and Applied Mathematics
T-7	Dyadechko, V.	Member	Society of Industrial and Applied Mathematics
T-7	Garimella, R.	Member	US Association of Computational Mechanics
T-7	Hagberg, A.	Member	Society for Industrial and Applied Mathematics
T-7	Holm, D.	Member	Society of Industrial and Applied Mathematics
T-7	Hyman, J.	Member	American Mathematical Society
T-7	Hyman, J.	President	Society of Industrial and Applied Mathematics
T-7	Jiang, Y.	Member	Society for Industrial and Applied Mathematics
T-7	Jiang, Y.	Member	Biophysical Society
T-7	Jiang, Y.	Member	American Physical Society
T-7	Kurien, S.	Member	American Physical Society
T-7	Li, W.	Member	Society for Industrial and Applied Mathematics
T-7	Li, S.	Member	Society of Industrial and Applied Mathematics
T-7	Lipnikov, K.	Member	Society of Industrial and Applied Mathematics
T-7	Lipnikov, K.	Member	American Mathematical Society
T-7	Loubere, R.	Member	Society of Industrial and Applied Mathematics
T-7	Moulton, J.	Member	American Mathematical Society
T-7	Moulton, J.	Member	Society for Industrial and Applied Mathematics

Group	Name	Position	Organization
T-7	Shashkov, M.	Member	International Association of Computational Mechanics
T-7	Shashkov, M.	Member	Society for Industrial and Applied Mathematics
T-7	Swart, P.	Member	Society of Industrial and Applied Mathematics
T-7	Swartz, B.	Member	Society for Industrial and Applied Mathematics
T-7	Tartakovsky, D.	Member	International Association of Hydrological Sciences
T-7	Tartakovsky, D.	Member	American Geophysical Union
T-7	Tartakovsky, D.	Member	Society for Industrial and Applied Mathematics
T-7	Vixie, K.	Member	Mathematical Association of America
T-7	Vixie, K.	Member	American Mathematical Association
T-7	Vixie, K.	Member	Society of Industrial and Applied Mathematics
T-8	Abazajian, K.	Member	American Physical Society
T-8	Abazajian, K.	Member	American Astronomical Society
T-8	Bhattacharya, T.	Member	American Physical Society
T-8	Cooper, F.	Member	American Physical Society
T-8	Gupta, R.	Fellow	American Physical Society
T-8	Habib, S.	Member	American Physical Society
T-8	Martin, M.	Member	American Physical Society
T-8	Mottola, E.	Member	American Physical Society
T-8	Nieto, M.	Fellow	American Physical Society
T-8	Steck, D.	Member	Optical Society of America
T-8	Steck, D.	Member	American Association of Physics Teachers
T-8	Steck, D.	Member	American Physical Society
T-8	Xu, Y.	Member	American Astronomical Society
T-10	Bruno, W.	Member	Biophysical Society
T-10	Dahari, H.	Member	Israel Association for the Study of the Liver
T-10	Dahari, H.	Member	Israeli Society for Theoretical & Mathematical Biology
T-10	Dahari, H.	Member	European Center for Theoretical Studies in Nuclear Physics and Related Areas
T-10	Dahari, H.	Member	Society for Mathematical Biology
T-10	Faeder, J.	Member	Society for Mathematical Biology
T-10	Faeder, J.	Member	American Association of Immunologists
T-10	Faeder, J.	Member	American Physical Society
T-10	Faeder, J.	Member	American Chemical Society
T-10	Fenimore, P.	Member	American Physical Society
T-10	Frauenfelder, H.	Member	Swiss Physical Society
T-10	Frauenfelder, H.	Member	National Academy of Sciences
T-10	Frauenfelder, H.	Member	Royal Swedish Academy-Foreign Member
T-10	Frauenfelder, H.	Member	Leopoldina Academy

Appendix F–Membership in Professional Organizations

Group	Name	Position	Organization
T-10	Frauenfelder, H.	Fellow	Biophysical Society
T-10	Frauenfelder, H.	Member	American Philosophical Society
T-10	Frauenfelder, H.	Member	American Academy of Arts and Sciences
T-10	Frauenfelder, H.	Fellow	American Association for the Advancement of Science
T-10	Frauenfelder, H.	Member	American Chemical Society
T-10	Frauenfelder, H.	Fellow	American Physical Society
T-10	Garcia, A.	Member	American Chemical Society
T-10	Garcia, A.	Member	Biophysical Society
T-10	Garcia, A.	Member	American Physical Society
T-10	Gnanakaran, S.	Member	Protein Society
T-10	Gnanakaran, S.	Member	Biophysical Society
T-10	Gnanakaran, S.	Member	American Chemical Society
T-10	Goldstein, B.	Member	American Association for the Advancement of Science
T-10	Goldstein, B.	Member	Biophysical Society
T-10	Goldstein, B.	Member	American Association of Immunologists
T-10	Hlavacek, W.	Member	Industry-University Cooperative Research Program
T-10	Korber, B.	Member	National Institute of Allergy and Infectious Diseases
T-10	Korber, B.	Member	AIDS Vaccine Research
T-10	Macken, C.	Member	Santa Fe Institute
T-10	Macken, C.	Member	Association for Women in Mathematics
T-10	Macken, C.	Member	Society for Industrial and Applied Mathematics
T-10	Macken, C.	Member	Society for Mathematical Biology
T-10	Perelson, A.	Member	American Association for the Advancement of Science
T-10	Perelson, A.	Member	Sigma Xi Scientific Research Society
T-10	Perelson, A.	Member	Society for Mathematical Biology
T-10	Perelson, A.	Member	American Society for Microbiology
T-10	Perelson, A.	Member	Institute of Electrical and Electronics Engineers
T-10	Perelson, A.	Member	American Association for the Study of Liver Diseases
T-10	Perelson, A.	Member	Society of Industrial and Applied Mathematics
T-10	Perelson, A.	Member	American Association of Immunologists
T-10	Stajic, J.	Member	American Physical Society
T-10	Torney, D.	Member	American Mathematical Society
T-10	Tung, C.-S.	Member	Biophysical Society
T-11	Albers, R.	Member	American Physical Society
T-11	Albers, R.	Member	American Association for the Advancement of Science
T-11	Barre, J.	Member	American Physical Society
T-11	Blagoev, K.	Member	American Physical Society
T-11	Boulaevskii, L.	Fellow	American Physical Society

Group	Name	Position	Organization
T-11	Graf, M.	Member	German Physical Society
T-11	Graf, M.	Member	American Physical Society
T-11	Gubernatis, J.	Member	American Association for the Advancement of Science
T-11	Gubernatis, J.	Member	Society for Industrial and Applied Mathematics
T-11	Gubernatis, J.	Fellow	American Physical Society
T-11	Hruska, M.	Member	American Physical Society
T-11	Joglekar, Y.	Member	American Physical Society
T-11	Kaneshita, E.	Member	Physical Society of Japan
T-11	Lomdahl, P.	Fellow	American Physical Society
T-11	Mozyrsky, D.	Member	American Physical Society
T-11	Saxena, A.	Member	Sigma Xi Scientific Research Society
T-11	Saxena, A.	Member	American Physical Society
T-11	Schnell, I.	Member	American Physical Society
T-11	Smith, D.	Member	Materials Research Society
T-11	Smith, D.	Co-Chair	American Physical Society
T-11	Trugman, S.	Member	American Physical Society
T-12	Asthagiri, D.	Member	American Chemical Society
T-12	Babikov, D.	Member	American Chemical Society
T-12	Batista, E.	Member	American Physical Society
T-12	Batista, E.	Member	American Chemical Society
T-12	Challacombe, W.	Member	Society for Industrial and Applied Mathematics
T-12	Challacombe, W.	Member	American Chemical Society
T-12	Clark, A.	Member	American Chemical Society
T-12	Goupalov, S.	Member	American Physical Society
T-12	Hay, P.	Member	American Chemical Society
T-12	Henson, N.	Member	Royal Society of Chemistry
T-12	Henson, N.	Member	American Chemical Society
T-12	Holian, B.	Chairman	American Physical Society
T-12	Koslowski, M.	Member	US Association of Computational Mechanics
T-12	Koslowski, M.	Member	International Association of Computational Mechanics
T-12	Koslowski, M.	Member	The Minerals, Metals & Material Society
T-12	Koslowski, M.	Member	Materials Research Society
T-12	Kress, J.	Member	American Physical Society
T-12	Kress, J.	Member	American Chemical Society
T-12	Lesar, R.	Member	American Physical Society
T-12	Lesar, R.	Member	The Minerals, Metals & Material Society
T-12	Magyar, R.	Member	American Physical Society
T-12	Magyar, R.	Member	American Chemical Society

Appendix F–Membership in Professional Organizations

Group	Name	Position	Organization
T-12	Martin, R.	Member	Materials Research Society
T-12	Martin, R.	Member	American Physical Society
T-12	Martin, R.	Member	American Chemical Society
T-12	Masunov, A.	Member	American Chemical Society
T-12	Pack, R.	Member	American Chemical Society
T-12	Pack, R.	Fellow	American Physical Society
T-12	Peery, T.	Member	American Chemical Society
T-12	Peery, T.	Member	American Physical Society
T-12	Piryatinski, A.	Member	American Chemical Society
T-12	Piryatinski, A.	Member	American Physical Society
T-12	Pratt, L.	Member	American Physical Society
T-12	Redondo, A.	Member	American Chemical Society
T-12	Redondo, A.	Member	American Physical Society
T-12	Reichhardt, C.	Member	American Physical Society
T-12	Tretia, S.	Member	American Physical Society
T-12	Tretiak, S.	Member	American Chemical Society
T-12	Tretiak, S.	Member	Materials Research Society
T-12	Uberuaga, B.	Member	Materials Research Society
T-12	Uberuaga, B.	Member	American Physical Society
T-12	Voter, A.	Member	American Physical Society
T-12	Walker, R.	Member	American Physical Society
T-13	Ben-Naim, E.	Fellow	American Institute of Physics
T-13	Ben-Naim, E.	Member	American Physical Society
T-13	Berman, G.	Fellow	American Physical Society
T-13	Doolen, G.	Member	American Association for the Advancement of Science
T-13	Doolen, G.	Member	American Nuclear Society
T-13	Doolen, G.	Member	American Mathematical Society
T-13	Doolen, G.	Member	American Physical Society
T-13	Jarzynski, C.	Member	Biophysical Society
T-13	Jarzynski, C.	Member	American Chemical Society
T-13	Jarzynski, C.	Member	American Physical Society
T-13	Toroczkai, Z.	Member	American Physical Society
T-13	Wallstrom, T.	Member	Institute of Mathematical Statistics
T-13	Wallstrom, T.	Member	American Mathematical Society
T-14	Bardenhagen, S.	Member	American Society of Mechanical Engineers
T-14	Bardenhagen, S.	Member	American Physical Society
T-14	Jaramillo, E.	Member	American Physical Society
T-14	Kober, E.	Member	American Chemical Society

Group	Name	Position	Organization
T-14	Menikoff, R.	Member	American Physical Society
T-14	Menikoff, R.	Member	American Association for the Advancement of Science
T-14	Menikoff, R.	Member	Society for Industrial and Applied Mathematics
T-14	Menikoff, R.	Member	Mathematical Association of America
T-14	Sewell, T.	Member	American Chemical Society
T-14	Sewell, T.	Member	American Physical Society
T-14	Shaw, M.	Member	American Physical Society
T-14	Strachan, A.	Member	Materials Research Society
T-14	Strachan, A.	Member	American Physical Society
T-14	Tymczak, C.	Member	American Physical Society
T-15	Chacon, L.	Member	American Physical Society
T-15	Chacon, L.	Member	Society of Industrial and Applied Mathematics
T-15	Finn, J.	Fellow	American Physical Society
T-15	Glasser, A.	Fellow	American Physical Society
T-15	Jones, C.	Member	American Physical Society
T-15	Simakov, A.	Member	Division of Plasma Physics
T-15	Tang, X.	Member	American Physical Society
T-15	Weisheit, J.	Member	American Association for the Advancement of Science
T-15	Weisheit, J.	Member	Sigma Xi Scientific Research Society
T-15	Weisheit, J.	Fellow	American Physical Society
T-15	Weisheit, J.	Member	International Astronomical Union
T-16	Friar, J.	Fellow	American Physical Society
T-16	Gibson, B.	Fellow	American Physical Society
T-16	Ginocchio, J.	Fellow	American Physical Society
T-16	Goldman, T.	Fellow	American Physical Society
T-16	Hale, G.	Fellow	American Physical Society
T-16	Herczeg, P.	Fellow	American Physical Society
T-16	Kawano, T.	Member	Atomic Energy Society of Japan
T-16	Madland, D.	Affiliate	European Center for Theoretical Studies in Nuclear Physics and Related Areas
T-16	Madland, D.	Affiliate	Institute for Nuclear Theory
T-16	Madland, D.	Fellow	American Physical Society
T-16	Pitcher, E.	Member	American Physical Society
T-16	Pitcher, E.	Member	American Nuclear Society
T-16	Reddy, S.	Member	American Physical Society
T-16	Sierk, A.	Member	Sigma Xi Scientific Research Society
T-16	Sierk, A.	Fellow	American Physical Society
T-16	Steiner, A.	Member	American Physical Society

Appendix F–Membership in Professional Organizations

Group	Name	Position	Organization
CNLS	Camacho, E.	Member	Society for Advancement of Chicanos and Native Americans in Science (SACNAS)
CNLS	Camacho, E.	Member	Mathematics Honor Society
CNLS	Camacho, E.	Member	Mathematical Association of America
CNLS	Camacho, E.	Member	Society of Industrial and Applied Mathematics
CNLS	Cintron-Arias, A.	Member	Society for Advancement of Chicanos and Native Americans in Science (SACNAS)
CNLS	Del Valle Pena, S.	Member	American Mathematical Society
CNLS	Del Valle Pena, S.	Member	Society for Advancement of Chicanos and Native Americans in Science (SACNAS)
CNLS	Ecke, R.	Member	American Association for the Advancement of Science
CNLS	Ecke, R.	Fellow	American Physical Society
CNLS	Huang, C.-F.	Member	International Society for Genetic and Evolutionary Computation
CNLS	Huang, C.-F.	Member	Great Lakes Bionformatics Consortium
CNLS	Kos, S.	Member	American Physical Society
CNLS	Nuno, M.	Member	Society for Advancement of Chicanos and Native Americans in Science (SACNAS)
CNLS	Ramaprabhu, P.	Member	American Society of Mechanical Engineers
CNLS	Ramaprabhu, P.	Member	American Physical Society
CNLS	Rios-Soto, K.	Member	Society for Advancement of Chicanos and Native Americans in Science (SACNAS)
CNLS	Sanchez-Pena, F.	Member	American Mathematical Society
CNLS	Sanchez-Pena, F.	Member	Society for Advancement of Chicanos and Native Americans in Science (SACNAS)
CNLS	Sanchez-Pena, F.	Member	Society of Industrial and Applied Mathematics

Appendix G

Professional Collaborations

Appendix G–Professional Collaborations

Group	Name	Collaborator	Institution
T-DO	Bishop, A.	NATO Collaborative Grant	Madrid, Spain
T-DO	Bishop, A.	NATO Collaborative Grant	Modena, Italy
T-DO	Bishop, A.	NATO Collaborative Grant	Lyon, France
T-DO	Bishop, A.	NATO Collaborative Grant	University Bayreuth, Germany
T-DO	Chen, S.P.	Ted Madey	Rutgers University
T-DO	Chen, S. P.	Josh Thorp	Self-employed
T-DO	Chen, S. P.	Wai-Ying Ching	University of Missouri, Kansas City
T-DO	Dalvit, D.	Daniel Steck	Oregon State University
T-DO	Dalvit, D.	Fabrcio Toscano	Federal University of Rio de Janeiro
T-DO	Dalvit, D.	Paulo Maia Neto	Federal University of Rio de Janeiro
T-DO	Dalvit, D.	Roberto Onofrio	Dartmouth College
T-DO	Dalvit, D.	Jacek Dziarmaga	University of Krakow
T-DO	Dalvit, d.	Francisco D. Mazzitelli	University of Buenos Aires
T-DO	Milonni, P.	J. Maclay	Quantum Fields LLP
T-DO	Milonni, P.	P. M. Alsing	University of New Mexico
T-DO	Milonni, P.	R. Y. Chiao	University of California-Berkeley
T-DO	Milonni, P.	P. R. Berman	University of Michigan
T-DO	Milonni, P.	R. W. Boyd	University of Rochester
T-DO	Milonni, P.	J. H. Eberly	University of Rochester
T-DO	Paz, J.	Marcos Saraceno	CNEA
T-DO	Paz, J.	Raymond LaFlamme	University of Waterloo
T-DO	Strottman, D.	Laszio Csernai	University of Bergen
T-DO	Strottman, D.	John Vergados	University of Ioannina
T-DO	Strottman, D.	Eulogio Oset	University of Valencia
T-DO	Strottman, D.	Phillippe Quentin	University of Bordeaux
T-DO	Strottman, D.	Nicolae Carjan	University of Bordeaux
T-DO	Strottman, D.	Heloise Goutte	CEA/DAM
T-DO	Strottman, D.	Jan-Francois Berger	CEA/DAM
T-DO	Strottman, D.	D. Gogny	Lawrence Livermore National Laboratory
T-DO	Strottman, D.	Claude Guet	CEA/DAM
T-DO	Strottman, D.	J. Becker	Lawrence Livermore National Laboratory
T-DO	Strottman, D.	D.J. Millener	Brookhaven National Laboratory
T-1	Bock, N.	Dermot Coffey	Buffalo State College
T-1	Burakovsky, L.	Hung-The Diep	University of Cergy-Pontoise
T-1	Burakovsky, L.	Ariel Dobry	National University of Rosario
T-1	Burakovsky, L.	Yi Wang	Pennsylvania State University
T-1	Burakovsky, L.	Anatoly Belonoshko	Royal Institute of Technology
T-1	Clements, B.	Stephan Bilyik	AMSRD-ARL-WMTD, Aberdeen, MD
T-1	Clements, B.	Tusit Weerasooriya	AMSRD-ARL-WMTD, Aberdeen, MD
T-1	Clements, B.	Scott Schoenfeld	AMSRD-ARL-WMTD, Aberdeen, MD
T-1	Clements, B.	Robert Garrett	NSWC
T-1	Clements, B.	George Kirby	NSWC
T-1	Clements, B.	Charles Campbell	University of Minnesota

Group	Name	Collaborator	Institution
T-1	Clements, B.	Henry Glyde	University of Delaware
T-1	Clements, B.	Eckherd Krotschek	University of Linz
T-1	Clements, B.	Neil Bourne	Cavandish Labs (UK)
T-1	Clements, B.	Dana Goto	Lawrence Livermore National Laboratory
T-1	George, D.	Anthony Rollett	Carnegie Mellon University
T-1	Greeff, C.	Shock Physics Group	Sandia National Laboratories
T-1	Holmstrom, E.	Levente Vitos	Condensed Matter Theory, Uppsala Sweden
T-1	Holmstrom, E.	Balazs Gyorffy	Bristol University
T-1	Holmstrom, E.	Gonzalo Gutierrez	University of Chile
T-1	Holmstrom, E.	Borge Johansson	Stockholm, Sweden
T-1	Holmstrom, E.	Igor Abrikoksov	Linkoping, Sweden
T-1	Holmstrom, E.	Olle Eriksson	Uppsala University
T-1	Johnson, J.	SESAME Database Community	
T-1	Johnson, J.	Marcus Knudson	Sandia National Laboratories
T-1	Kuprat, A.	Jason Gruber	Carnegie Mellon University
T-1	Kuprat, A.	Greg Rohrer	Carnegie Mellon University
T-1	Kuprat, A.	Tony Rollet	Carnegie Mellon University
T-1	Mas, E.	Scott Howard	Redstone, ARL
T-1	Mas, E.	Mel Baer	Sandia National Laboratories
T-1	Mas, E.	Craig Tarver	Lawrence Livermore National Laboratory
T-1	Mas, E.	Krzystof Szalewicz	University of Delaware
T-1	Niklasson, A.	Hans Agren	Royal Institute of Technology
T-1	Niklasson, A.	Pawel Salek	Royal Institute of Technology
T-1	Niklasson, A.	Anna Delin	Royal Institute of Technology
T-1	Niklasson, A.	Olle Eriksson	Uppsala University
T-1	Niklasson, A.	Eric Bittner	University of Houston
T-1	Niklasson, A.	Nicola Spaldin	Materials Research Laboratory at UCSB
T-1	Rudin, S.	A. Liu	Georgetown University
T-1	Rudin, S.	M. Jones	State University of New York, Buffalo
T-1	Rudin, S.	R. Hennig	Ohio State University
T-1	Rudin, S.	J. W. Wilkins	Ohio State University
T-1	Wallace, D.	Walter Harrison	Stanford University
T-1	Wallace, D.	Dermot Coffey	State University of New York
T-1	Wills, J.	John Klepeis	Lawrence Livermore National Laboratory
T-1	Wills, J.	John B Aidun	Sandia National Laboratories
T-1	Wills, J.	Mebark Alouani	Universities Louis Pasteur
T-1	Wills, J.	Anna Delin	ICTP, Trieste, Italy
T-1	Wills, J.	Olle Eriksson	Uppsala University
T-3	Beyerlein, I.	S. Leigh Phoenix	Cornell University
T-3	Beyerlein, I.	Linda Schadler	Rensselear University
T-3	Beyerlein, I.	Catherine Brinson	Northwestern University
T-3	Beyerlein, I.	Lazslo Toth	Metz, France
T-3	Beyerlein, I.	Azdiar Gazder	Monash University

Appendix G–Professional Collaborations

Group	Name	Collaborator	Institution
T-3	Bronkhorst, C.	Francesco DeCarlo	Argonne National Laboratory
T-3	Harstad, E.	Gene Hertel	Sandia National Laboratories
T-3	Harstad, E.	Shane Schumacher	Sandia National Laboratories
T-3	Harstad, E.	Ray Bell	Sandia National Laboratories
T-3	Hunke, E.	Julie McClean	Naval Postgraduate School
T-3	Hunke, E.	Wieslaw Maslowski	Naval Postgraduate School
T-3	Hunke, E.	Don Stark	Naval Postgraduate School
T-3	Hunke, E.	Jong Kim	Argonne National Laboratory
T-3	Hunke, E.	Slawek Tulacyk	University of California-Santa Cruz
T-3	Hunke, E.	Marion Bougamont	University of California-Santa Cruz
T-3	Hunke, E.	Marika Holland	National Center for Atmospheric Research
T-3	Hunke, E.	Trey White	Oak Ridge National Laboratory
T-3	Hunke, E.	Alison McLaren	UK Met Office, Hadley Centre
T-3	Jones, P.	C. Ding	Lawrence Berkeley National Laboratory
T-3	Jones, P.	M. Wehner	Lawrence Berkeley National Laboratory
T-3	Jones, P.	D. Bader	Lawrence Livermore National Laboratory
T-3	Jones, P.	A. Mirin	Lawrence Livermore National Laboratory
T-3	Jones, P.	D. Williams	Lawrence Livermore National Laboratory
T-3	Jones, P.	J. Larson	Argonne National Laboratory
T-3	Jones, P.	R. Jacob	Argonne National Laboratory
T-3	Jones, P.	M. Suarez	NASA GSFC
T-3	Jones, P.	A. DaSilva	NASA GSFC
T-3	Jones, P.	V. Balaji	NOAA GFDL
T-3	Jones, P.	R. Mechoso	University of California-Los Angeles
T-3	Jones, P.	J. Spahr	University of California-Los Angeles
T-3	Jones, P.	J. McWilliams	University of California-Los Angeles
T-3	Jones, P.	P. Worley	Oak Ridge National Laboratory
T-3	Jones, P.	J. Drake	Oak Ridge National Laboratory
T-3	Jones, P.	F. Bryan	National Center for Atmospheric Research
T-3	Jones, P.	P. Gent	National Center for Atmospheric Research
T-3	Jones, P.	N. Norton	National Center for Atmospheric Research
T-3	Jones, P.	C. DeLuca	National Center for Atmospheric Research
T-3	Jones, P.	J. Wolfe	National Center for Atmospheric Research
T-3	Jones, P.	David Randall	Colorado State University
T-3	Jones, P.	Todd Ringler	Colorado State University
T-3	Kashiwa, B.	Jim Fort	Pacific Northwest National Laboratory
T-3	Kashiwa, B.	Tim O'Hern	Sandia National Laboratories
T-3	Kashiwa, B.	Patrick McMurtry	University of Utah
T-3	Knoll, D.	Carol Woodward	Lawrence Livermore National Laboratory
T-3	Knoll, D.	Piotr Smolarkiewicz	National Center for Atmospheric Research
T-3	Knoll, D.	Dimitri Mavriplis	NASA Institute for Computational Science & Engineering
T-3	Knoll, D.	John Shadid	Sandia National Laboratories
T-3	Knoll, D.	David E. Keyes	Old Dominion University

Group	Name	Collaborator	Institution
T-3	Lipscomb, W.	Seymour Laxon	University College
T-3	Lipscomb, W.	Polar Climate Working Group	National Center for Atmospheric Research
T-3	Lipscomb, W.	Slawek Tulaczyk	University of California-Santa Cruz
T-3	Lipscomb, W.	Ian Howat	University of California-Santa Cruz
T-3	Lipscomb, W.	Jonathan Gregory	Hadley Centre for Climate Modeling and Research
T-3	Lipscomb, W.	Jeff Ridley	Hadley Centre for Climate Modeling and Research
T-3	Lipscomb, W.	Helene Banks	Hadley Centre for Climate Modeling and Research
T-3	Lipscomb, W.	Alison McLaren	Hadley Centre for Climate Modeling and Research
T-3	Lipscomb, W.	Wieslaw Maslowski	Naval Postgraduate School
T-3	Lipscomb, W.	Donald Stark	Naval Postgraduate School
T-3	Lipscomb, W.	Todd Ringler	Colorado State University
T-3	Lipscomb, W.	David Randall	Colorado State University
T-3	Maltrud, M.	Dennis McGillicuddy	Woods Hole Oceanographic Institution
T-3	Maltrud, M.	Anne Marie Treguier	IFREMER, France
T-3	Maltrud, M.	Francisco Chavez	Monterey Bay Aquarium Research Institute
T-3	Maltrud, M.	Chris Meinen	University of Miami
T-3	Maltrud, M.	David Erickson	Oak Ridge National Laboratory
T-3	Maltrud, M.	Frank Bryan	National Center for Atmospheric Research
T-3	Maltrud, M.	Doug Luther	University of Hawaii
T-3	Maltrud, M.	Kevin Speer	Florida State University
T-3	Maltrud, M.	Julie McClean	Naval Postgraduate School
T-3	Moses, R.	Peter Van Blarigan	Sandia National Laboratories-Livermore
T-3	Sahota, M.	Adrian Tentner	Argonne National Laboratory
T-3	Sahota, M.	Patrick J. Pagni	University of California-Berkeley
T-3	Sahota, M.	Stefan Domino	Sandia National Laboratories
T-3	Sahota, M.	I. Sofronov	All Russian Res. Inst. of Experimental Physics
T-3	Sahota	Dan Haworth	Pennsylvania State University
T-3	Schraad, M.	N.Triantafyllidis	University of Michigan
T-3	Smith, R.	Oceanography Group	National Center for Atmospheric Research
T-3	Tonks, M.	Ken Chase	Brigham Young University
T-3	Vanderheyden, W.	Computer Science Dept.	Rice University
T-3	Zuo, Q.	H. W. Meyer	Army Research Laboratory
T-4	Abdallah, J.	P.A. Laboda, Russia	ISTC SPECTRA W^3 Project
T-4	Abdallah, J.	Y. Fukuda	JAERI
T-4	Abdallah, J.	Anatoly Faenov	MCISDC
T-4	Abdallah, J.	R. E. H. Clark	IAEA
T-4	Cohen, J.	B.I. Schneider	National Science Foundation
T-4	Cohen, J.	V.S. Melezhik	Joint Institute for Nuclear Research
T-4	Cohen, J.	C.-Y. Hu	California State University
T-4	Colgan, J.	D.W. Savin	Columbia University
T-4	Colgan, J.	F. Martin	Universidad Autonoma de Madrid
T-4	Colgan, J.	C.W. McCurdy	University of California-Berkeley
T-4	Colgan, J.	T.N. Rescigno	University of California-Berkeley

Appendix G–Professional Collaborations

Group	Name	Collaborator	Institution
T-4	Colgan, J.	D.A. Horner	University of California-Berkeley
T-4	Colgan, J.	R. Wehlitz	Synchrotron Radiation Center
T-4	Colgan, J.	S.B. Whitfield	Synchrotron Radiation Center
T-4	Colgan, J.	N.R. Badnell	University of Strathclyde
T-4	Colgan, J.	M.G. O'Mullane	University of Strathclyde
T-4	Colgan, J.	H.P. Summers	University of Strathclyde
T-4	Colgan, J.	Hugo van der Hart	Queen's University
T-4	Colgan, J.	C. McKenna	Queen's University
T-4	Colgan, J.	D.C. Griffin	Rollins College
T-4	Colgan, J.	C.P. Ballance	Rollins College
T-4	Colgan, J.	M.S. Pindzola	Auburn University
T-4	Colgan, J.	F. Robicheaux	Auburn University
T-4	Colgan, J.	J. Ludlow	Auburn University
T-4	Colgan, J.	S.D. Loch	Auburn University
T-4	Colgan, J.	M.C. Witthoeft	Auburn University
T-4	Colgan, J.	U. Kleiman	Auburn University
T-4	Collins, L.	C. Noble	Daresbury Laboratory
T-4	Collins, L.	P. Burke	Daresbury Laboratory
T-4	Collins, L.	C. Weatherford	Florida A&M
T-4	Collins, L.	D. Feder	University of Calgary
T-4	Collins, L.	B. Schneider	National Science Foundation
T-4	Collins, L.	M. Desjarlais	Sandia National Laboratories
T-4	Collins, L.	P. Blottiau	CEA
T-4	Collins, L.	J. Clerouin	CEA
T-4	Csanak, G.	Takashi Fujimoto	Kyoto University
T-4	Csanak, G.	Atsushi Iwamae	Kyoto University
T-4	Csanak, G.	Igor Bray	Murdoch University
T-4	Csanak, G.	Dmitry Fursa	Murdoch University
T-4	Csanak, G.	A.Y. Faenov	Moscow, Russia
T-4	Hakel, P.	Scientific Staff	Sandia National Laboratories
T-4	Hakel, P.	Roberto C. Mancini	University of Nevada, Reno
T-4	Hu, S.	Christoph H. Keitel	University of Freiburg
T-4	Hu, S.	Anthony F. Starace	University of Nebraska-Lincoln
T-4	James, D.	William J. Munro	Hewlett-Packard Laboratories
T-4	James, D.	Andrew G. White	The University of Queensland
T-4	James, D.	P.G. Kwiat	University of Illinois, Urbana-Champaign
T-4	James, D.	Rainer Blatt	University of Innsbruck
T-4	Karkuszewski, Z.	Bogdan Damski	University of Hannover
T-4	Karkuszewski, Z.	J. Zakrzewski	Jagiellonian University
T-4	Keady, J.	J.-M. Winters	Grenoble
T-4	Keady, J.	S. Davidson	AWE
T-4	Keady, J.	B. Wilson	Lawrence Livermore National Laboratory
T-4	Keady, J.	J. Castor	Lawrence Livermore National Laboratory

Group	Name	Collaborator	Institution
T-4	Kilcrease, D.	Dominique Gilles	CEA
T-4	Kilcrease, D.	Fujimoto	University of Kyoto
T-4	Kilcrease, D.	The Plasma Group	University of Kyoto
T-4	Kilcrease, D.	Dmitri Fursa	Murdoch University
T-4	Kilcrease, D.	Igor Bray	Murdoch University
T-4	Mazevet, S.	G. Zerah	CEA
T-4	Mazevet, S.	V. Recoules	CEA
T-4	Mazevet, S.	J. Clerouin	CEA
T-4	Mazevet, S.	J.B. Maillet	CEA
T-4	Mazevet, S.	P. Blottiau	CEA
T-4	Mazevet, S.	Yann Laudernet	CEA
T-4	Ponomarenko, S.	G. Schwartzlander	University of Arizona
T-4	Ponomarenko, S.	Group of A. Dogariu	CREOL/School of Optics
T-4	Ponomarenko, S.	N.M. Litchinitser	University of Michigan
T-4	Ponomarenko, S.	Emil Wolf	University of Rochester
T-4	Ponomarenko, S.	G.P. Agrawal	The Institute of Optics
T-4	Sherrill, M.	A. Yu. Faenov	Multicharged Ions Spectra Data Center of VNIIFTRI
T-4	Sherrill, M.	Y. Fukuda	Advanced Photon Research Center, JAERI
T-4	Sherrill, M.	Roberto Mancini	University of Nevada, Reno
T-4	Timmermans, E.	Roberto Onofrio	Dartmouth College
T-4	Timmermans, E.	Kevin Bedell	Boston College
T-4	Timmermans, E.	Sergio Gaudio	Boston College
T-4	Timmermans, E.	Arthur Kerman	Massachusetts Institute of Technology
T-4	Timmermans, E.	Deborah Santamore	Harvard Smithsonian Center for Astrophysics
T-4	Timmermans, E.	Peter Littlewood	Cambridge University
T-4	Timmermans, E.	Meera Parish	Cambridge University
T-6	Fryer, C.	Fulvio Melia	University of Arizona
T-6	Fryer, C.	Dave Arnette	University of Arizona
T-6	Fryer, C.	Phil Pinto	University of Arizona
T-6	Fryer, C.	Adam Burrows	University of Arizona
T-6	Heger, A.	T.E. Strohmayer	NASA/GSFC
T-6	Heger, A.	Weiqun Zhang	Stanford University
T-6	Heger, A.	D. Whalen	University of California-San Diego
T-6	Heger, A.	J.W. Truran	University of Chicago
T-6	Heger, A.	H.C. Spruit	Max Planck Institute for Astrophysics
T-6	Heger, A.	P.M. Ricker	UIUC
T-6	Heger, A.	T. Rauscher	University of Basel
T-6	Heger, A.	S. Rappaport	Massachusetts Institute of Technology
T-6	Heger,A.	J. Pruet	Lawrence Livermore National Laboratory
T-6	Heger, A.	A. J. T. Poelarends	University of Utrecht
T-6	Heger, A.	Ph. Podsiadlowski	Oxford University
T-6	Heger, A.	E. Pfahl	Café
T-6	Heger, A.	B. O'Shea	University of California-San Diego

Appendix G–Professional Collaborations

Group	Name	Collaborator	Institution
T-6	Heger, A.	J.W. Murphey	University of Arizona
T-6	Heger, A.	G. Marinez-Pinedo	University of Barcelona
T-6	Heger, A.	A.I. MacFadyen	California Institute of Technology/IAS Princeton
T-6	Heger, A.	Norbert Langer	University of Utrecht
T-6	Heger, A.	Franz Kaeppeler	Kernforschungszentrum Karlsruhe
T-6	Heger, A.	H.-Th. Janka	Max Plank Institute for Astrophysics
T-6	Heger, A.	Roberto Gallino	University of Torino
T-6	Heger, A.	Karlheinz Langanke	University of Aarhus
T-6	Heger, A.	Wick Haxton	University of Washington
T-6	Heger, A.	Isabelle Baraffe	ENS Lyon
T-6	Heger, A.	Adam Burrows	University of Arizona
T-6	Heger, A.	Rob Hoffman	Lawrence Livermore National Laboratory
T-6	Heger, A.	Andrew Cumming	McGill University
T-6	Heger, A.	Hendrik Schatz	Michigan State University
T-6	Heger, A.	Michael L. Norman	University of California-San Diego
T-6	Heger, A.	Lars Bildstan	University of California-Santa Barbara
T-6	Heger, A.	Ernst Rehm	Argonne National Laboratory
T-6	Heger, A.	Michael Paul	Hebrew University/Argonne National Laboratory
T-6	Heger, A.	Ed Brown	JINA/Michigan State University
T-6	Heger, A.	Stan Woosley	University of California-San Cruz
T-6	Heger, A.	Michael Wiescher	JINA/Notre Dame University
T-6	Herwig, F.	Tim Beers	Joint Institute of Nuclear Astrophysics
T-6	Herwig, F.	Sam Austin	Joint Institute of Nuclear Astrophysics
T-6	Herwig, F.	Hendrick Schatz	Joint Institute of Nuclear Astrophysics
T-6	Holz, D.	Milos Milosavljevic	California Institute of Technology
T-6	Holz, D.	David Merritt	RIT
T-6	Holz, D.	Lloyd Knox	University of California-Davis
T-6	Holz, D.	Joshua Frieman	University of Chicago/Fermilab
T-6	Holz, D.	Marc Favata	Cornell University
T-6	Holz, D.	Eric Linder	Lawrence Berkeley National Laboratory
T-6	Holz, D.	Scott Hughes	Massachusetts Institute of Technology
T-6	Jungman, G.	Andreas Heinen	Universitat Dortmund
T-6	Jungman, G.	James Amundson	Fermilab
T-6	Luu, T.	Chuck Horowitz	University of Indiana Bloomington
T-6	Luu, T.	Anthony Mezzacappa	SciDac (TSI)
T-6	Luu, T.	Wick Haxton	SciDac (TSI)
T-6	Timmes, F.	Alan Calder	University of Chicago
T-6	Timmes, F.	Jim Truran	University of Chicago
T-6	Timmes, F.	Greg Laughlin	University of California-San Cruz
T-6	Timmes, F.	Stan Woosley	University of California-San Cruz
T-6	Timmes, F.	Anne Cowley	Arizona State University
T-6	Timmes, F.	Sumner Starrfield	Arizona State University
T-6	Timmes, F.	Fulvio Melia	University of Arizona

Group	Name	Collaborator	Institution
T-6	Timmes, F.	David Arnett	University of Arizona
T-6	Timmes, F.	Bill Paxton	Kavali Institute For Theoretical Physics
T-6	Timmes, F.	Lars Bildsten	Kavali Institute For Theoretical Physics
T-6	Timmes, F.	David Dean	Rare Isotope Accelerator - Theory Working Group
T-6	Timmes, F.	Quian Yong	Rare Isotope Accelerator - Theory Working Group
T-6	Timmes, F.	Karlheinz Langanke	Rare Isotope Accelerator - Theory Working Group
T-6	Timmes, F.	Hendrick Schatz	Rare Isotope Accelerator - Theory Working Group
T-6	Timmes, F.	Ed Brown	Joint Institute for Nuclear Astrophysics
T-6	Timmes, F.	jim Truran	Joint Institute for Nuclear Astrophysics
T-6	Timmes, F.	Tim Beers	Joint Institute for Nuclear Astrophysics
T-6	Timmes, F.	Michael Weisher	Joint Institute for Nuclear Astrophysics
T-6	Warren, M.	Luis Teodoro	University of Glasgow
T-6	Warren, M.	Peder Norberg	Institute of Astronomy, ETH Zurich
T-6	Warren, M.	Andreas Berlind	New York University
T-6	Warren, M.	Jeremy Tinker	Ohio State University
T-6	Warren, M.	Risa Wechsler	University of Chicago
T-6	Warren, M.	Gus Evrard	University of Michigan
T-6	Warren, M.	Uros Seljak	Princeton University
T-7	Austin, T.	Brandon Sheehan	University of Colorado - Boulder
T-7	Berndt, M.	Ivan Yotov	University of Pittsburgh
T-7	Berndt, M.	Mary Wheeler	University of Texas
T-7	Beyer, W.	Leon Arriola	University of Wisconsin
T-7	Chartrand, R.	Selim Esedoglu	University of California-Los Angeles
T-7	Chartrand, R.	Triet Le	University of California-Los Angeles
T-7	Chartrand, R.	Erik Bollt	Clarkson University
T-7	Chartrand, R.	Peter Schultz	Clarkson University
T-7	Chowell-Puente, G.	Profirio Diaz-Duenas	Mexican Institute of Public Health
T-7	Chowell-Puente, G.	Fred Brauer	University of British Columbia
T-7	Chowell-Puente, G.	Carlos Castillo-Chavez	Arizona State University
T-7	Gabitov, I.	Dmitry Zakharov	Moscow State University
T-7	Gabitov, I.	Konstantin Turitsyn	Landau Institute
T-7	Gabitov, I.	Josh Soneson	University of Arizona
T-7	Hagberg, A.	Sam Stechman	Courant Institute
T-7	Hagberg, A.	Katy Bold	Princeton University
T-7	Hagberg, A.	Dan Schult	Colgate University
T-7	Hagberg, A.	Brad Marts	Duke University
T-7	Hagberg, A.	Christian Elphick	Centro de Fisica No Lineal y Sustemas Complejos
T-7	Hagberg, A.	Arik Yochelis	BGU, Israel
T-7	Hagberg, A.	Ehud Meron	BGU, Israel
T-7	Hagberg, A.	Anna Lin	Duke University
T-7	Holm, D.	Boris I Zhilinskii	Dunkerque
T-7	Holm, D.	Laurent Younes	Johns Hopkins University
T-7	Holm, D.	Christos Vasillicos	Imperial College London

Appendix G–Professional Collaborations

Group	Name	Collaborator	Institution
T-7	Holm, D.	Alaine Trouve	Universite Paris 13
T-7	Holm, D.	Sam Stechman	NYU Courant Institute
T-7	Holm, D.	Edriss Titi	Weizmann Institute
T-7	Holm, D.	Edriss Titi	University of California-Irvine
T-7	Holm, D.	Jurgen Schreule	DTU Munich
T-7	Holm, D.	Dmitri A Sadovskii	Dunkerque
T-7	Holm, D.	Ian Roulstone	Surrey, UK
T-7	Holm, D.	Sebastian Reich	Potsdam, DE
T-7	Holm, D.	J. Tilak Ratnanather	Johns Hopkins University
T-7	Holm, D.	Tudor Ratiu	EPFL Lausanne
T-7	Holm, D.	Vakhtang Putkaradaze	University of New Mexico
T-7	Holm, D.	Peter Lynch	Trinity University - Dublin
T-7	Holm, D.	Hans-Peter Kruse	DTU Munich
T-7	Holm, D.	Mark Joyeux	Dunkerque
T-7	Holm, D.	Georg A Gottwald	Sydney
T-7	Holm, D.	John D Gibbon	Imperial College London
T-7	Holm, D.	Andrea Giacobe	Padova, IT
T-7	Holm, D.	Bernard J Geurts	Twente, NL
T-7	Holm, D.	Bruce R Fabijonas	Southern Methodist University
T-7	Holm, D.	Holger R Dullin	Loughborough University
T-7	Holm, D.	Richard H Cushman	Utrecht, NL
T-7	Holm, D.	Collin J Cotter	Imperial College London
T-7	Holm, D.	Michael Cullen	UK Met Office, Exeter
T-7	Holm, D.	Chongsheng Cao	Univeristy of Nebraska
T-7	Holm, D.	Nawaf Bou-Rabee	California Institute of Technology
T-7	Hyman, J.	Joel Miller	Churchill College
T-7	Hyman, J.	Maxim Shkarayev	University of California-San Cruz
T-7	Hyman, J.	Nakul Chitnis	University of Arizona
T-7	Hyman, J.	Seymour Parter	University of Wisconsin
T-7	Hyman, J.	Carlos Castillo-Chavez	Arizona State University
T-7	Hyman, J.	Jack Xin	University of Texas - Austin
T-7	Hyman, J.	Yi Li	Steven Institute of Technology
T-7	Hyman, J.	Phillip Rosenau	Tel Aviv University
T-7	Hyman, J.	Stanley Steinberg	University of New Mexico
T-7	Hyman, J.	Bill Newman	University of California – Los Angeles
T-7	Hyman, J.	Juan Restrepo	University of Arizona
T-7	Hyman, J.	Joel Miller	Cambridge University
T-7	Hyman	Tara LaForce	University of Texas
T-7	Hyman, J.	Leon Arriola	University of Wisconsin
T-7	Hyman, J.	Jia Li	University of Alabama
T-7	Jiang, Y.	Jason Slaunwhite	Ohio State University
T-7	Jiang, Y.	Christophe Raufaste	University Joseph-Fourier, Grenoble, France
T-7	Jiang, Y.	Jelena Pjesivac	University Tennessee

Group	Name	Collaborator	Institution
T-7	Jiang, Y.	Juan Restrepo	University of Arizona
T-7	Jiang, Y.	Anjani Didwania	University of California-San Diego
T-7	Jiang, Y.	Amy Bauer	University of Michigan
T-7	Jiang, Y.	Trachette Jackson	University of Michigan
T-7	Jiang, Y,	Jay Tang	Brown University
T-7	Jiang, Y.	James Glazier	Indiana University - Bloomington
T-7	Jiang, Y.	Miguel Aubouy	University Joseph-Fourier, Grenoble, France
T-7	Jiang, Y.	Benjamin Dollet	University Joseph-Fourier, Grenoble, France
T-7	Jiang, Y.	Francois Graner	University Joseph-Fourier, Grenoble, France
T-7	Jiang, Y.	Maris Kiskowski	Vanderbilt University
T-7	Jiang, Y.	Olga Sozinova	University of Notre Dame
T-7	Jiang, Y.	Mark Alber	University of Notre Dame
T-7	Kurien, S.	Evelyn M. Lunasin	University of California-Irvine
T-7	Kurien, S.	Joerg Schumacher	Phillips University of Marburg, Germany
T-7	Kurien, S.	Edriss Titi	Weizmann Institute, Israel
T-7	Kurien, S.	Leslie Smith	University of Wisconsin - Madison
T-7	Kurien, S.	Mark A. Taylor	Sandia National Laboratories
T-7	Kurien, S.	Takeshi Matsumoto	Kyoto University, Japan
T-7	Kurien, S.	K. R. Sreenivasan	Abdus Salam Int'l Ctr. for Theoretical Physics, Italy
T-7	Li, S.	Xiao-Lin Li	State University of New York
T-7	Li, S.	Linda Petzold	University of Santa Barbara
T-7	Lipnikov, K.	Bodo Erdmann	ZIB, Berlin, Germany
T-7	Lipnikov, K.	Yu. Vassilevski	Russian Academy of Sciences
T-7	Lipnikov, K.	Franco Brezzi	University of Pavia, Italy
T-7	Lipnikov, K.	Yu. Kuznetsov	University of Houston
T-7	Lipnikov, K.	I. Yotov	University of Pittsburgh
T-7	Lipnikov, K.	M. Wheeler	University of Texas, Austin
T-7	Loubere, R.	R. Abgrall	University of Bordeaux
T-7	Moulton, J.	Tamer Zaki	Stanford University
T-7	Moulton, J.	Tom Manteuffel	University of Colorado at Boulder
T-7	Moulton, J.	Steve McCormick	University of Colorado at Boulder
T-7	Moulton, J.	Scott MacLachlan	University of Colorado at Boulder
T-7	Peleg, A.	Thomas Dohnal	University of New Mexico
T-7	Shashkov, M.	Daniil Svyatskiy	University of Houston
T-7	Shashkov, M.	P. Vachal	Prague University
T-7	Shashkov, M.	M. Kucharik	Prague University
T-7	Shashkov, M.	P. Bures	Prague University
T-7	Shashkov, M.	Bruno Despres	CEA
T-7	Shashkov, M.	Franco Brezzi	University of Pavia
T-7	Shashkov, M.	Ivan Yotov	University of Pittsburgh
T-7	Shashkov, M.	Mary Wheeler	University of Utah
T-7	Shashkov, M.	Yurii Kuznetsov	University of Hawaii
T-7	Shashkov, M.	Pavel Bochev	Sandia National Laboratories

Appendix G–Professional Collaborations

Group	Name	Collaborator	Institution
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T-7	Shashkov, M.	V. Ganzha	Munich Technical University
T-7	Shashkov, M.	R. Liska	Prague University
T-7	Shashkov, M.	J. Castillo	San Diego State University
T-7	Shashkov, M.	S. Steinberg	University of New Mexico
T-7	Shashkov, M.	P. Knupp	Sandia National Laboratories
T-7	Staley, M.	Anya Petersen	University of Arizona
T-7	Staley, M.	Philip Rosenau	Tel-Aviv University
T-7	Staley, M.	Juan Restrepo	University of Arizona
T-7	Swart, P.	Andrew Fraser	Portland State University
T-7	Swart, P.	Erik Bollt	Clarkson University
T-7	Swart, P.	Hernan Rozenfeld	Clarkson University
T-7	Swart, P.	Katy Bold	Princeton University
T-7	Swart, P.	Daniel Schult	Colgate University
T-7	Tartakovsky, D.	Jesus Carrera	Technical University of Catalonia
T-7	Tartakovsky, D.	Alberto Guadagnini	Politecnico de Milano, Italy
T-7	Tartakovsky, D.	Vitaly Zlotnik	University of Nebraska
T-7	Tartakovsky, D.	Walter Illman	University of Iowa
T-7	Tartakovsky, D.	Shlomo P. Neuman	University of Arizona
T-7	Tartakovsky, D.	Timm Ginn	University of California-Davis
T-7	Vixie, K.	Fangfang Shen	University of Arizona
T-7	Vixie, K.	Andrea Hawkins	Walla Walla College
T-7	Vixie, K.	Yann LeCun	Courant Institute
T-7	Vixie, K.	Danny benAvraham	Clarkson University
T-7	Vixie, K.	Vwani Roychowdhury	University of California-Los Angeles
T-7	Vixie, K.	Guillermo Sapiro	Minnesota State
T-7	Vixie, K.	Simon Morgan	Minnesota State
T-7	Vixie, K.	Curt Vogel	University of Montana
T-7	Vixie, K.	David Caraballo	Georgetown
T-7	Vixie, K.	Pete Schultz	Clarkson University
T-7	Vixie, K.	Erik Bollt	Clarkson University
T-7	Vixie, K.	Gilad Lerman	Minnesota State
T-7	Vixie, K.	Fadil Santosa	Minnesota State
T-7	Vixie, K.	Jackie Shen	University of Minnesota
T-7	Vixie, K.	John Greer	Courant Institute
T-7	Vixie, K.	Triet Le	University of California-Los Angeles
T-7	Vixie, K.	Selim Esedoglu	University of California-Los Angeles
T-7	Vixie, K.	Peter Jones	Yale University
T-7	Vixie, K.	Allon Percus	IPAM/University of California-Los Angeles
T-7	Vixie, K.	Kayo Ide	University of California-Los Angeles
T-7	Vixie, K.	Didier Sornette	University of California-Los Angeles
T-7	Vixie, K.	Tony Chan	University of California-Los Angeles
T-7	Vixie, K.	Andrea Bertozzi	University of California-Los Angeles

Group	Name	Collaborator	Institution
T-7	Vixie, K.	Stan Osher	University of California-Los Angeles
T-7	Vixie, K.	Bill Allard	Duke University
T-7	Vixie, K.	John E. Dennis	Rice University
T-7	Wohlberg, B.	Srivatsan Kandadai	New Mexico State University
T-8	Abazajian, K.	Scott Dodelson	Fermi National Accelerator Laboratory
T-8	Abazajian, K.	David Tytler	University of California-San Diego
T-8	Abazajian, K.	George Fuller	University of California-San Diego
T-8	Abazajian, K.	Idit Zehavi	Sloan Digital Sky Survey
T-8	Abazajian, K.	Josh Frieman	Sloan Digital Sky Survey
T-8	Abazajian, K.	David Weinberg	Sloan Digital Sky Survey
T-8	Abazajian, K.	Andreas Berlind	Sloan Digital Sky Survey
T-8	Abazajian, K.	Zheng Zheng	Sloan Digital Sky Survey
T-8	Bhattacharya, T.	Ivan H. Deutsch	University of New Mexico
T-8	Bhattacharya, T.	Paul M. Alsing	University of New Mexico
T-8	Bhattacharya, T.	Hideo Mabuchi	California Institute of Technology
T-8	Bhattacharya, T.	Kurt A. Jacobs	Griffith University
T-8	Bhattacharya, T.	Daniel Steck	University of Oregon
T-8	Bhattacharya, T.	Weonjong Lee	Seoul National University
T-8	Bhattacharya, T.	Stephen R. Sharpe	University of Washington
T-8	Cooper, F.	Gouranga Nayak	State University of New York at Stony Brook
T-8	Cooper, F.	Andrew Chamblin	Louisville University
T-8	Cooper, F.	Avinash Khare	Institute of Theoretical Physics Bubeneswar
T-8	Cooper, F.	John Dawson	University of New Hampshire
T-8	Friedland, A.	Carlos Pena-Garay	IAS, Princeton University
T-8	Friedland, A.	Ivona Okuniewicz	University of Melbourne
T-8	Friedland, A.	Bruce McKellar	University of Melbourne
T-8	Friedland, A.	Michele Maltoni	State University of New York at Stony Brook
T-8	Friedland, A.	Cecilia Lunardini	Institute for Nuclear Theory, Seattle
T-8	Gupta, R.	Clive Pullinger	University of California-San Francisco
T-8	Gupta, R.	George Fleming	Thomas Jefferson National Laboratory
T-8	Gupta, R.	Weonjong Lee	Seoul National University
T-8	Gupta, R.	Norman Christ	Columbia University
T-8	Gupta, R.	Bob Sugar	University of California-Santa Barbara
T-8	Gupta, R.	Greg Kilcup	The Ohio State University
T-8	Gupta, A.	Steve Sharpe	University of Washington
T-8	Habib, S.	Keith Schwab	Laboratory for Physical Sciences
T-8	Habib, S.	Carmen Molina-Paris	University of Leeds
T-8	Habib, S.	Daniel Steck	University of Oregon
T-8	Habib, S.	Lam Hui	Columbia University
T-8	Habib, S.	Kurt Jacobs	Griffith University
T-8	Habib, S.	Adam Lidz	Harvard University
T-8	Habib, S.	Mattias Zaldarriaga	Harvard University
T-8	Habib, S.	Paul Ricker	University of Illinois, Urbana-Champaign

Appendix G–Professional Collaborations

Group	Name	Collaborator	Institution
T-8	Habib, A.	Sergei Shandarin	University of Kansas
T-8	Habib, S.	Hume Feldman	University of Kansas
T-8	Habib, S.	Robert Ryne	Lawrence Berkeley National Laboratory
T-8	Habib, S.	Ji Qiang	Lawrence Berkeley National Laboratory
T-8	Habib, S.	Albert Stebbins	Fermi National Acceleratory Laboratory
T-8	Habib, S.	Scott Dodelson	Fermi National Acceleratory Laboratory
T-8	Habib, S.	Josh Frieman	Fermi National Acceleratory Laboratory
T-8	Habib, S.	Ivan Deutsch	University of New Mexico
T-8	Habib, S.	Kosuke Shizume	University of Tsukuba, Japan
T-8	Habib, S.	Bala Sundaram	City University of New York
T-8	Habib, S.	Hideo Mabuchi	California Institute of Technology
T-8	Marandella, G.	Marco Cirelli	Yale University
T-8	Marandella, G.	Giacomo Cacciapaglia	Cornell University
T-8	Marandella, G.	Christian Schappacher	Karlsruhe University
T-8	Marandella, G	Alessandro Strumia	Pisa University
T-8	Martin, M.	Rich Holman	Carnegie Mellon University
T-8	Mottola, E.	Ruslan Vaulin	Florida Atlantic University
T-8	Mottola, E.	Margaret Carrington	Brandon University
T-8	Mottola, E.	Ignatios Antoniadis	CERN
T-8	Mottola, E.	Paul R. Anderson	Wake Forest University
T-8	Mottola, E.	Carmen Molina-Paris	University of Warwick
T-8	Mottola, E.	Pawel Mazur	University of South Carolina
T-8	Nieto, M.	Michael Holzscheiter	Pbar Labs and CERN
T-8	Nieto, M.	Hansjoerg Dittus	University of Bremen
T-8	Nieto, M.	Slava G. Turyshev	Jet Propulsion Laboratory
T-8	Nieto, M.	John D. Anderson	Jet Propulsion Laboratory
T-8	Steck, D.	Bala Sundaram	City University of New York
T-8	Steck, D.	Poul Jessen	Arizona University
T-8	Steck, D.	Bram Tucker	Ohio State University
T-8	Steck, D.	Mark Raizen	The University of Texas at Austin
T-8	Steck, D.	Hideo Mabuchi	California Institute of Technology
T-10	Bruno, W.	Kimmen Sjolander	University of California-Berkeley
T-10	Bruno, W.	K. St. John	Lehman College
T-10	Bruno, W.	N. Socci	Sloan-Kettering
T-10	Bruno, W.	Deborah Dean	Children's Hospital of Oakland Research Institute
T-10	Bruno, W.	Martijn Huynen	Center for Molecular and Biomolecular Informatics
T-10	Faeder, J.	Chikako Torigoe	Cornell University
T-10	Faeder, J.	David Holowka	Cornell University
T-10	Faeder, J.	Barbara Baird	Cornell University
T-10	Faeder, J.	Kodi Ravichandran	University of Virginia
T-10	Faeder, J.	Stan Steinberg	University of New Mexico
T-10	Faeder, J.	George Luger	University of New Mexico
T-10	Faeder, J.	Janet Oliver	University of New Mexico

Group	Name	Collaborator	Institution
T-10	Goldstein, B.	Alexis Kalergis	Pontificia Universidad Catolica de Chile
T-10	Goldstein, B.	Daniel Coombs	University of British Columbia, Dept. of Mathematics
T-10	Goldstein, B.	Chikako Torigoe	Cornell University
T-10	Goldstein, B.	David Holowka	Cornell University
T-10	Goldstein, B.	Barbara Baird	Cornell University
T-10	Goldstein, B.	Michael Dustin	New York University
T-10	Kuiken, C.	Fay Schilkey	NCRG
T-10	Kuiken, C.	Burkhard Morgenstern	University Bielefeld
T-10	Kuiken, C.	Tom Williams	University of New Mexico
T-10	Kuiken, C.	Sanjeev Arora	University of New Mexico
T-10	Kuiken, C.	Todd Allen	Harvard University
T-10	Kuiken, C.	Christian Brander	Harvard University
T-10	Kuiken, C.	Ling Lu	Kansas University Medical Center
T-10	Kuiken, C.	Eric Delwart	University of California-San Francisco
T-10	Kuiken, C.	Harold Burger	Wadstorth University Institute
T-10	Kuiken, C.	Barbara Weiser	Wadstorth University Institute
T-10	Kuiken, C.	Jen Layden	Northwestern University
T-10	Leitner, T.	Bruce Walker	Massachusetts General Hospital
T-10	Leitner, T.	Steven Wolinsky	Northwestern University
T-10	Leitner, T.	Peter Savolainen	Royal Institute of Technology
T-10	Leitner, T.	Britta Wahren	Swedish Institute for Infectious Disease Control
T-10	Leitner, T.	G. Scarlatti	Sanprafaele Scientific Institute, Italy
T-10	Leitner, T	Annuka Ehrnest	Karolinska Institute , Sweden
T-10	Leitner, T.	Jan Albert	Swedish Institute for Infectious Disease Control
T-10	Pearson, J.	Silvina Ponce Dawson	Universidad de Buenos Aires
T-10	Pearson, J.	Kevin Foskett	University of Pennsylvania
T-10	Pearson, J.	Ian Parker	University of California-Irvine
T-10	Perelson, A.	Miles Davenport	University of New South Wales, Australia
T-10	Perelson, A.	Rob DeBoer	University Utrecht Netherlands
T-10	Perelson, A.	Andrew Talal	Cornell University School of Medicine
T-10	Perelson, A.	Steven Wolinsky	Northwestern School of Medicine
T-10	Perelson, A.	Martin Markowitz	Rockefeller University
T-10	Perelson, A.	David Ho	Rockefeller University
T-10	Perelson, A.	Thomas Layden	University of Illinois School of Medicine
T-10	Ribeiro, R.	Luis Graca	Institute of Molecular Medicine, Lisbon, Portugal
T-10	Ribeiro, R.	Andrew Talal	Cornell University
T-10	Ribeiro, R.	Jorge Carneiro	Instituto Gulbenkian de Ciencia, Portugal
T-10	Ribeiro, R.	Miles Davenport	University of New South Wales
T-10	Ribeiro, R.	Sharon Lewin	University of Melbourne
T-10	Ribeiro, R.	Tom Layden	University of Illinois, Chicago
T-10	Sanbonmatsu, K.	Joseph Simpson	University of California-San Diego
T-10	Torney, D.	Charles Colboun	Arizona State University
T-10	Tung, C.-S.	Luc Jaeger	University of California--Santa Barbara

Appendix G–Professional Collaborations

Group	Name	Collaborator	Institution
T-10	Tung, C.-S.	Tobias Hollerer	University of California--Santa Barbara
T-10	Tung, C.-S.	Rajendra Agrawal	State University of New York
T-11	Ahluwalia, R.	S. Sreekala	Indian Institute of Science - Bangalore India
T-11	Ahluwalia, R.	G. Ananthakrishna	Indian Institute of Science - Bangalore India
T-11	Ahluwalia, R.	Wenwu Cao	Pennsylvania State University
T-11	Albers, R.	J. Bouchet	CEA
T-11	Albers, R.	G. Jomard	CEA
T-11	Albers, R.	J. W. Wilkins	Ohio state University
T-11	Albers, R.	M. Springborg	University of Saarbruecken, Germany
T-11	Albers, R.	J. J. Rehr	University of Washington
T-11	Albers, R.	M. D. Jones	State University of New York
T-11	Barre, J.	F. Boronovi	Catholic University of Brescia, Italy
T-11	Barre, J.	G. Celardo	Catholic University of Brescia, Italy
T-11	Barre, J.	F. Bouchet	E N S Lyon, France
T-11	Barre, J.	T. Dauzois	E N S Lyon, France
T-11	Barre, J.	Stefano Ruffo	Florence University
T-11	Batista, C.	Raivo Stern	National Institute of Chemical Physics & Biophysics
T-11	Batista, C.	A A. Aligia	Instituto Balseiro, Argentina
T-11	Batista, C.	Ian Fisher	Stanford University
T-11	Batista, C.	Michel Kenzelmann	John Hopkins University
T-11	Batista, C.	Janez Bonca	Stefan Institute, Slovenia
T-11	Batista, C.	Naoki Kawashima	Metropolitan University of Tokyo
T-11	Blagoev, K.	James Brooks	Florida State University
T-11	Blagoev, K.	Michale Davidson	Florida State University
T-11	Blagoev, K.	Eric Halgren	Harvard Medical School
T-11	Blagoev, K.	Van Wedeen	Harvard Medical School
T-11	Boulaevskii, L.	M. Tachiki	National Institute for Materials - Japan
T-11	Boulaevskii, L.	A. E. Koshelev	Argonne National Laboratory
T-11	Boulaevskii, L.	Yu. I. Layshev	Russian Academy of Science
T-11	Boulaevskii, L.	Alexander Shnirman	University of Karlsrue
T-11	Graf, M.	Dierk Rainer	Universitaet Bayreuth, Germany
T-11	Graf, M.	James Sauls	Northwestern University
T-11	Graf, M.	Yunkyu Bang	Chonnam National University, South Korea
T-11	Gubernatis, J.	Steve White	University of California-Irvine
T-11	Gubernatis, J.	Richard Scalettar	University of California-Davis
T-11	Gubernatis, J.	Doug Scalapino	University of California-Santa Barbara
T-11	Gubernatis, J.	Bob Sugar	University of California-Santa Barbara
T-11	Gubernatis, J.	Janez Bonca	Institut Jozef Stefan & Universkty of Ljubljana
T-11	Gubernatis, J.	Hai Qing Lin	University of Hong Kong
T-11	Hruska, M.	Simon Kos	Cambridge University
T-11	Hruska, M.	A. Shnirman	University of Karlsruhe
T-11	Hruska, M.	Yu. Makhlin	University of Karlsruhe
T-11	Hruska, M.	B. Spivak	University of Washington

Group	Name	Collaborator	Institution
T-11	Joglekar, Y.	Anton Burkov	University of California
T-11	Joglekar, Y.	A.H. MacDonald	University of Texas at Austin
T-11	Joglekar, Y.	Enrico Rossie	University of Texas at Austin
T-11	Joglekar, Y.	Ganpathy Murthy	University of Kentucky
T-11	Joglekar, Y.	Hoang Nguyen	University of Kentucky
T-11	Lomdahl, P.	Marc Meyes	University of California-Santa Barbara
T-11	Lomdahl, P.	Vitali Nesterenko	University of California-Santa Barbara
T-11	Lomdahl, P.	D. Benson	University of California-Santa Barbara
T-11	Lomdahl, P.	Hidetoshi Konno	University of Tsukuba - Japan
T-11	Lomdahl, P.	David Beazley	University of Chicago
T-11	Lomdahl, P.	N. Jensen	University of California-Davis
T-11	Lomdahl, P.	Bernie Alder	University of California-Davis
T-11	Lomdahl, P.	Ramon Ravelo	University of Texas
T-11	Lomdahl, P.	P. Entel	University of Duisburg
T-11	Lomdahl, P.	Michel Mareschal	CECAM Lyon- France
T-11	Lomdahl, P.	Dan Calantar	Lawrence Livermore National Laboratory
T-11	Lomdahl, P.	Justin Wark	Oxford University
T-11	Martin, L.	Z.G. Yu	SRI, Menlo Park
T-11	Martin, L.	E. Irish	N S A
T-11	Martin, L.	K. Schwab	N S A
T-11	Martin, L.	P. Zoller	University of Innsbruck
T-11	Martin, L.	L. Tian	Massachusetts Institute of Technology
T-11	Martin, L.	Yu. Mahklin	Landau Institute Moscow, Russia
T-11	Martin, L.	E. Yablonovitch	University of California-Los Angeles
T-11	Martin, I.	G. Shoen	University of Karlsruhe
T-11	Martin, I.	A. Shnirman	University of Karlsruhe
T-11	Mozyrsky, D.	V. Privman	Clarkson University
T-11	Mozyrsky, D.	H. W. Jiang	University of California-Los Angeles
T-11	Mozyrsky, D.	P. C. Hammel	Ohio State University
T-11	Mozyrsky, D.	S. A. Gurvirtz	Weizmann Institute
T-11	Mozyrsky, D.	V. Ambegaokar	Cornell University
T-11	Nussinov, Z.	Lincoln Chayes	University of California-Los Angeles
T-11	Nussinov, Z.	Marek Biskup	University of California-Los Angeles
T-11	Nussinov, Z.	Ilya Vekhter	Louisiana State University
T-11	Nussinov, Z.	Daniel P. Arovas	University of California
T-11	Nussinov, Z.	Shmuel Nussivov	Tel-Aviv University
T-11	Nussinov, Z.	Eduardo Fradkin	Urbana
T-11	Nussinov, Z.	Alexander Shrnirman	University of Karlsruhe
T-11	Nussinov, Z.	Jan Zaanen	Stanford University
T-11	Ortiz, G.	Cirac	Max Planck Institute Munich
T-11	Ortiz, G.	B.S. Shastry	Institute of Science, Bangalore India
T-11	Ortiz, G., G.	Rossler	University of Regensburg, Germany
T-11	Ortiz, G.	B. Abdullaev	Uzbekistant National University

Appendix G–Professional Collaborations

Group	Name	Collaborator	Institution
T-11	Saxena, A.	Mogens R. Samuelsen	The Technical University of Denmark
T-11	Saxena, A.	Peter Littlewood	Cambridge University
T-11	Saxena, A.	James D.Gunton	Lehigh University
T-11	Saxena, A.	William Klein	Boston University
T-11	Saxena, A.	Venkat Gopalan	Pennsylvania State University
T-11	Saxena, A.	Avinash Khare	Institute of Physics, Bhubaneswar India
T-11	Saxena, A.	Antoni Planes	University of Barcelona
T-11	Saxena, A.	Teresa Castan	University of Barcelona
T-11	Saxena, A.	Jerome Benoit	University of Crete
T-11	Saxena, A.	Ioana Bena	University of Geneva
T-11	Saxena, A.	F. X. Bronold	University of Magdeburg
T-11	Saxena	S. R. Shenoy	International Centre for Theoretical Physics
T-11	Saxena, A.	J. W. Neuberger	University of Texas
T-11	Saxena, A.	W. Cao	Pennsylvania State University
T-11	Saxena, A.	Pradeep Kumar	University of Florida
T-11	Saxena, A.	Panos Kevrekidis	University of Massachusetts
T-11	Saxena, A.	D. Schmeltzer	City University of New York
T-11	Schnell, AI	M.D. Jones	State University of New York-Buffalo
T-11	Schnell, I.	G. Czycholl	University of Bremen, Germany
T-11	Smith, D.	D. Schmeltzer	CCNY
T-11	Smith, D.	J. N. Schulmand	HRL Labs
T-11	Smith, D.	J. J. Zinck	HRL Labs
T-11	Smith, D.	D.Z. Y. Ting	Jet Propulsion Laboratory
T-11	Smith, D.	P. P. Ruden	University of Minnesota
T-11	Trugman, S.	Y. Moritomo	University of Japan - Nagoya
T-11	Trugman, S.	N. H. Hur	University of Korea - Daejeon
T-11	Trugman, S.	Y. Kubo	University of Japan - Tsukuba
T-11	Trugman, S.	Y. Shimakawa	University of Japan - Tsukuba
T-11	Trugman, S.	H. Imai	University of Japan - Tsukuba
T-11	Trugman, S.	H. Okamura	University of Japan - Kobe
T-11	Trugman, S.	Edward Yu	University of California-San Diego
T-11	Trugman, S.	Sanjay Krishna	University of New Mexico
T-11	Trugman, S.	J. Demsar	J. Stefan Institute
T-11	Trugman, S.	S. Kivelson	University of California-Los Angeles
T-11	Trugman, S.	J. Bonca	J. Stefan Institute
T-11	Trugman, S.	V.V. Kabanov	J. Stefan Institute
T-11	Trugman,S.	Li-Chung Ku	University of California-Irvine
T-12	Asthagiri, D.	Hank Ashbaugh	Tulane University
T-12	Asthagiri, D.	Orkid Conskuner	Johns Hopkins University
T-12	Asthagiri, D.	Amit Paliwal	Johns Hopkins University
T-12	Asthagiri, D.	Dobrin Bossev	NIST, Johns Hopkins & Indiana universities
T-12	Asthagiri, D.	Abraham Lenhoff	University of Delaware
T-12	Asthagiri, D.	Michael Paulaitis	Johns Hopkins University

Group	Name	Collaborator	Institution
T-12	Babikov, D.	Alec Wodtke	University of California-Santa Barbara
T-12	Babikov, D.	Keiji Morokuma	Emory University
T-12	Batista, E.	Siegfried Leung	Yale University
T-12	Batista, E.	Victor S. Batista	Yale University
T-12	Batista, E.	Gustavo E. Scuseria	Rice University
T-12	Batista, E.	Juan E. Peralta	Rice University
T-12	Chao, S.	Rex T. Skodje	University of Colorado
T-12	Clark, A.	George Bruhn	University of Rochester
T-12	Clark, A.	Ernest R. Davison	University of Washington
T-12	Clark, A.	Istvan Mayer	Hungarian Academy of Sciences
T-12	Clark, A.	Jason Sonnenberg	Ohio State University
T-12	Hay, P.	CRADA	Proctor and Gamble
T-12	Hay, P.	Jason Sonnenberg	Ohio State University
T-12	Kendrick, B.	Avier Aoiz	University of Madrid
T-12	Kendrick, B.	Marcelo P. de Miranda	University of Leeds
T-12	Kendrick, B.	C. Alden Mead	University of Minnesota
T-12	Kendrick, B.	Donald G. Truhlar	University of Minnesota
T-12	Kendrick, B.	Eric Bittner	University of Houston
T-12	Kendrick, B.	Keiji Morokuma	Emory University
T-12	Kendrick, B.	Dmitri Babikov	Marquette University
T-12	Kress, J.	Pawel Keblinski	Renssalaer Polytechnic Institute
T-12	Kress, J.	Susan Rempe	Sandia National Laboratories
T-12	Kress, J.	J. Michael Lightfoot	BWXT Pantex
T-12	Kress, J.	Patrick Blottiau	CEA
T-12	Kress, J.	Michael Desjarlais	Sandia National Laboratories
T-12	Kress, J.	Sheng Der Chao	National Taiwan University
T-12	Kress, J.	Michael Salazar	Union University
T-12	Kress, J.	Denise Pauler	Cornell University
T-12	Kress, J.	Niels Gronbech-Jensen	University of California-Davis
T-12	Lesar, R.	Nicola Spaldin Hill	University of California-Santa Barbara
T-12	Lesar, R.	Jim Speck	University of California-Santa Barbara
T-12	Lesar, R.	Jeffrey Rickman	Lehigh University
T-12	Lesar, R.	Nasr Ghoniem	University of California at Los Angeles
T-12	Lesar, R.	Carlos Levi	University of California-Santa Barbara
T-12	Martin, R.	Jim Doll	Brown University
T-12	Martin, R.	Nicola Spaldin	University of California-Santa Barbara
T-12	Martin, R.	Warren Pickett	University of California-Davis
T-12	Martin, R.	Gus Scuseria	Rice University
T-12	Masunov, A.	Guilermo Bazan	University of California-Santa Barbara
T-12	Pack, R.	Dmitri Babikov	Marquette University
T-12	Pack, R.	Wayne A. Rodin	BWXT Pantex
T-12	Pack, R.	J. Michael Lightfoot	BWXT Pantex
T-12	Pack, R.	Gregory A. Parker	University of Oklahoma

Appendix G–Professional Collaborations

Group	Name	Collaborator	Institution
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T-12	Piryatinski, A.	Vladimir Chernyak	Wayne State University
T-12	Redondo, A.	Henry Metzger	National Institutes of Health
T-12	Redondo, A.	Eva Schneiderman	Procter & Gamble
T-12	Redondo, A.	Pawel Keblinski	Rensselaer Polytechnic Institute
T-12	Reichhardt, C.	R. Scalettar	University of California-Davis
T-12	Reichhardt, C.	G. Zimanyi	University of California-Davis
T-12	Reichhardt, C.	V. Metlushko	University of Illinois at Chicago
T-12	Reichhardt, C.	B. Janko	University of Notre Dame
T-12	Reichhardt, C.	M. Iavarone	Argonne National Laboratory
T-12	Reichhardt, C.	W. Kwok	Argonne National Laboratory
T-12	Tretiak, S.	Vladimir Chernyak	Wayne State University
T-12	Tretiak, S.	Filipp Furche	University of Karlsruhe
T-12	Tretiak, S.	M.Blanchard-Desce	Universite de Rennes
T-12	Tretiak, S.	John Lupton	University of Munich
T-12	Tretiak, S.	Joe Perry	University of Arizona
T-12	Tretiak, S.	Anne Meyers Kelley	Kansas State University
T-12	Tretiak, S.	David Alara	Pennsylvania State University
T-12	Tretiak, S.	Gui Bazan	University of California-Santa Barbara
T-12	Tretiak, S.	Shaul Mukamel	University of California-Irvine
T-12	Uberuaga, B.	Hannes Jonsson	University of Iceland
T-12	Uberuaga, B.	Steve Stuart	Clemson University
T-12	Uberuaga, B.	Francesco Montalenti	Universita degli Studi di Milano-Bicocca
T-12	Uberuaga, B.	Robin Grimes	Imperial College
T-12	Uberuaga, B.	Roger Smith	Loughburough University
T-12	Uberuaga, B.	Wolfgang Windl	Ohio State University
T-12	Voter, A.	Janna Maranas	Pennsylvania State University
T-12	Voter, A.	John Harding	University of Sheffield
T-12	Voter, A.	Robin Grimes	Imperial College
T-12	Voter, A.	Roger Smith	University of Loughborough
T-12	Voter, A.	Greg Voth	University of Utah
T-12	Voter, A.	Mark Bukowinski	University of California-Berkeley
T-12	Voter, A.	Luciano Colombo	University of Caligari, Italy
T-12	Voter, A.	Jacques Amar	University of Toledo
T-12	Voter, A.	Francesco Montalenti	University of Milano
T-12	Voter, A.	Wolfgang Windl	Ohio State University
T-12	Voter, A.	Steve Stuart	Clemson University
T-13	Berman, G.	D. Allara	Pennsylvania State University
T-13	Berman, G.	F. Borganovi	Polytechnic Brescia University
T-13	Berman, G	V. I. Tsifrinovich	Polytechnic University
T-13	Chung, Y.-J.	Vladimir Lebedev	Landau Institute
T-13	Chung, Y.-J.	Tobias Schaefer	University of North Carolina, Chapel Hill
T-13	Chung, Y.-J.	Chris Jones	University of North Carolina, Chapel Hill

Group	Name	Collaborator	Institution
T-13	Chung, Y.-J.	Gene Wayne	Boston University
T-13	Doolen, G.	Dean Collins	Advanced Research Development Activity
T-13	Doolen, G.	Peter Coveney	University of London
T-13	Doolen, G.	Shiyi Chen	Johns Hopkins University
T-13	Doolen, G.	David Allara	Pennsylvania State University
T-13	Hastings, M.	Brad Marston	Brown University
T-13	Hastings, M.	Christopher Mudry	Paul Scherrer Institut
T-13	Hastings, M.	Balazs Kozma	Rensellaer Polytechnic Institute
T-13	Hastings, M.	Gyorgy Korniss	Rensellaer Polytechnic Institute
T-13	Jarzynski, C.	Henry Ashbaugh	Tulane University
T-13	Jarzynski, C.	Thomas Woolf	Johns Hopkins University
T-13	Jarzynski, C.	Artur Adib	Brown University
T-13	Jarzynski, C.	Felix Ritort	University of Barcelona
T-13	Jarzynski, C.	Jan Liphardt	University of California-Berkeley
T-13	Jarzynski, C.	Carlos Bustamente	University of California-Berkeley
T-13	Kamenev, D.	V. I. Tsifrinovich	Polytechnic University
T-13	Lapedes, A.	Ron Fouchier	Dutch Influenza Center
T-13	Lapedes, A.	Derke Smtih	Cambridge University
T-13	Lapedes, A.	Klaus Stohr	Center for Disease Control World Health Organization
T-13	Lapedes, A.	Nancy Cos	Center for Disease Control World Health Organization
T-13	Mackerrow, E.	Roger Hurwitz	Massachusetts Institute of Technology
T-13	Mackerrow, E.	Mike Coombs	New Mexico State University
T-13	Mackerrow, E.	Claudio Revilla-Cioffi	George Mason University
T-13	Mackerrow, E.	William Griffin	Arizona State University
T-13	Mackerrow, E.	Robert Axtell	Brookings Institute
T-13	Mackerrow, E.	Bill Kastenberger	University of California
T-13	Patelli, P.	Yuzuru Sato	Santa Fe Institute
T-13	Patelli, P.	Doyne Farmer	Santa Fe Institute
T-13	Smerzi, A.	Lev Pitaevskii	Istituto Nazionale di fisica per La Materia
T-13	Smerzi, A.	Sandro Stringari	Istituto Nazionale di fisica per La Materia
T-13	Smerzi, A.	Massimo Inguscio	Laboratorio Europeo di spettrografia
T-13	Stepanov, M.	Konstantin Turitsyn	Landau Institute for Theoretical Physics
T-13	Toroczkai, Z.	Kevin E Bassler	Houston University
T-13	Toroczkai, Z.	Gyorgy Korniss	Rensselaer Polytechnic Institute
T-14	Bardenhagen, S.	Gerald Seidler	University of Washington
T-14	Bardenhagen, S.	Patrick McMartry	University of Utah
T-14	Bardenhagen, S.	Grant Smith	University of Utah
T-14	Bardenhagen, S.	John Nairn	University of Utah
T-14	Bardenhagen, S.	Andrew Kraynik	Sandia National Laboratories
T-14	Kadau, K.	B. Yaakobi	University of Rochester
T-14	Kadau, K.	J. Wark, K.Rosolankova	University of Oxford
T-14	Kadau, K.	R.J. Ravelo	University of Texas

Appendix G–Professional Collaborations

Group	Name	Collaborator	Institution
T-14	Kadau, K.	N.Hadjiconstantionou	Massachusetts Institute of Technology
T-14	Kadau, K.	Berni Alder	Lawrence Livermore National Laboratory
T-14	Kadau, K.	Ed Alley	Lawrence Livermore National Laboratory
T-14	Kadau, K.	Andy Cook	Lawrence Livermore National Laboratory
T-14	Kadau, K.	P. Entel	University of Duisburg, Germany
T-14	Kadau, K.	P. Wolf	University of Duisburg, Germany
T-14	Kadau, K.	D. Kadau	University of Duisburg, Germany
T-14	Kadau, K.	M. Kreth	University of Duisburg, Germany
T-14	Kadau, K.	S. Grabowski	University of Duisburg, Germany
T-14	Kadau, K.	F. Westerhoff	University of Duisburg, Germany
T-14	Kadau, K.	Johannes Roth	University of Stuttgart, Germany
T-14	Kober, R.	William Goddard	University of New Mexico
T-14	Kober, E.	Niels Jenson	University of California-Davis
T-14	Kober, E.	David Benson	University of California-San Diego
T-14	Kober, E.	Grant Smith	University of Utah
T-14	Sewell, T.	Levitas	Texas Tech
T-14	Sewell, T.	Thompson	University of Missouri
T-14	Sewell, T.	Smith	University of Utah
T-14	Strachan, A.	Adri van Duin	University of New Mexico
T-14	Strachan, A.	Alberto Cuitino	Rutgers University
T-14	Strachan, A.	W. A. Goddard, III	California Institute of Technology
T-14	Welch, P.	Tom Kalantar	Dow Chemical Company
T-14	Welch, P.	Gus Carrie	University of Akron
T-15	Chacon, L.	D. Keyes	Columbia University
T-15	Chacon, L.	D.C. Barraj	Colorado University
T-15	Chacon, L.	A. Bhattacharjee	University of New Hampshire
T-15	Chacon, L.	K. Germaschewski	University of New Hampshire
T-15	Finn, J.	Steve Richardson	College of William and Mary
T-15	Finn, J.	Gian Luca Delzanno	University of Torino
T-15	Finn, J.	Bill Cooke	College of William and Mary
T-15	Finn, J.	Eugene Tracy	College of William and Mary
T-15	Glasser, A.	Richard Fitzpatrick	University of Texas
T-15	Glasser, A.	Ron Cohen	Lawrence Livermore National Laboratory
T-15	Glasser, A.	Don Pearlstein	Lawrence Livermore National Laboratory
T-15	Glasser, A.	Bill Nevins	Lawrence Livermore National Laboratory
T-15	Glasser, A.	Steve Cowley	University of California-Los Angeles
T-15	Glasser, A.	Alan Turnbull	General Atomics
T-15	Glasser, A.	Ming Chu	General Atomics
T-15	Glasser, A.	Peter Catto	Massachusetts Institute of Technology
T-15	Glasser, A.	Steve Wolfe	Massachusetts Institute of Technology
T-15	Glasser, A.	Allen Boozer	Columbia University
T-15	Glasser, A.	Michael Mauel	Columbia University
T-15	Glasser, A.	Gerald Navratil	Columbia University

Group	Name	Collaborator	Institution
T-15	Glasser, A.	Steven Sabbagh	Columbia University
T-15	Glasser, A.	James Bialek	Columbia University
T-15	Glasser, A.	Sam Cohan	Princeton Plasma Theory Laboratory
T-15	Glasser, A.	Steve Jardin	Princeton Plasma Theory Laboratory
T-15	Glasser, A.	Morrell Chance	Princeton Plasma Theory Laboratory
T-15	Glasser, A.	David Gates	Princeton Plasma Theory Laboratory
T-15	Lapenta, G.	Gianni Coppa	Politecnico di Torino
T-15	Lapenta, G.	Guus Jacobs	Brown University
T-15	Lapenta, G.	Homa Karimabadi	University of California-Santa Barbara
T-15	Lapenta, G.	Dietmar Krass-Varban,	University of California-San Diego
T-15	Lapenta, G.	Joe Huba	NRL
T-15	Lapenta, G.	Marlene Rosenburg	University of California-San Diego
T-15	Tang, X.	Roger Raman	University of Michigan
T-15	Tang, X.	Allen H. Boozer	Columbia University
T-15	Weisheit, J.	D. Geller	Utah State University
T-15	Weisheit, J.	E. Scannapieco	Kavil Institute for Theoretical Physics
T-16	Bonneau, L.	Philippe Quentin	CENBG (France)
T-16	Carlson, J.	V. R. Pandharipande	University of Illinois
T-16	Carlson, J.	R. Schiavilla	Jefferson Laboratory
T-16	Carlson, J.	S. C. Pieper	Argonne National Laboratory
T-16	Carlson, J.	R. B. Wiringa	Argonne National Laboratory
T-16	Carlson, J.	K. Nollett	Argonne National Laboratory
T-16	Carlson, J.	George Fuller	University of California-San Diego
T-16	Friar, J.	U. van Kolck	University of Arizona
T-16	Friar, J.	G. Payne	University of Iowa
T-16	Gibson, B.	AGS experiment 931	Brookhaven National Laboratory
T-16	Ginocchio, J.	J. Meng	Peking University
T-16	Ginocchio, J.	Shan-Gui Zhou	Peking University
T-16	Ginocchio, J.	A. Arima	University of Tokyo
T-16	Ginocchio, J.	Y. M. Zhao	Riken, Japan
T-16	Ginocchio, J.	Ami Leviatan	Hebrew University
T-16	Goldman, T.	J-L. Ping	Nanjing, Normal University
T-16	Goldman, T.	H-R. Pang	Nanjing University
T-16	Goldman, T.	F. Wang	Nanjing University
T-16	Goldman, T.	E.L. Lomon	Massachusetts Institute of Technology
T-16	Goldman, T.	M.M. Brisudova	IUCF
T-16	Goldman, T.	A. Szczepaniak	IU/IUCF
T-16	Goldman, T.	M.A. Garbutt	University of Melbourne
T-16	Goldman, T.	B.H.J McKellar	University of Melbourne
T-16	Goldman, T.	A.S. Goldhaber	State University of New York, Stony Brook
T-16	Goldman, T.	G.J. Stephenson	University of New Mexico
T-16	Hale, G.	H. M. Hofmann	University of Erlangen-Nürnberg
T-16	Lemaire, S.	B. Silvestre-Brac	Institut des Sciences Nucleaires

Appendix G–Professional Collaborations

Group	Name	Collaborator	Institution
T-16	Lemaire, S.	J. Labarsouque	Centre D'Etudes Nucleaires de Bordeaux
T-16	Liu, L.-C.	Marco Tomaselli	GSI and Universitat Darmstadt
T-16	Liu, L.C.	Bertrand Giraud	Centre d'etude-Saclay, France
T-16	Madland, D.	Thomas Buervenich	Max-Planck Institute
T-16	Madland, D.	Paul-Gerhard Reinhard	University of Erlangen-Nuernberg
T-16	Madland, D.	Joachim Maruhn	University of Frankfurt
T-16	Möller, P.	Andreas Woehr	Notre Dame
T-16	Möller, P.	Heloise Goutte	Bruyeres Le Chatel
T-16	Möller, P.	F. Berger	Bruyeres Le Chatel
T-16	Möller, P.	Tsutomu Ohtsuki	Tohoku University
T-16	Möller, P.	Hendrik Schatz	Michigan State University
T-16	Möller, P.	Ragnar Bengtsson	Lund Institute of Technology
T-16	Möller, P.	Andrius Juodagalvis	University of Tennessee
T-16	Möller, P.	Hiro Sagawa	Aizu University
T-16	Möller, P,.	Akira Iwamoto	JAERI
T-16	Möller, P,.	T. Ichikawa	JAERI
T-16	Möller, P.	Christof Scheidenberg	GSI
T-16	Möller, P.	K. H. Schmidt	GSI
T-16	Möller, P.	Sigurd Hofmann	GSI
T-16	Page, P.	Simon Capstick	Florida State University
T-16	Pitcher, E.	Monroe Wechsler	North Carolina State University
T-16	Pitcher, E.	Karen Kelley	Georgia Tech
T-16	Reddy, S.	Joydip Kundu	Massachusetts Institute of Technology
T-16	Reddy, S.	David Kaplan	University of Washington
T-16	Reddy, S.	Adam Burrows	University of Arizona
T-16	Reddy, S.	Jose Pons	Alicante University
T-16	Reddy, S.	Charles Horowitz	Indiana University
T-16	Reddy, S.	Krishna Rajagopal	Massachusetts Institute of Technology
T-16	Reddy, S.	M. Prakash	State University of New York, Stony Brook
T-16	Reddy, S.	M. Alford	University of Washington
T-16	Sierk, A.	K. K. Gudima	Academy of Science of Moldova
T-16	Steiner, A.	Madappa Prakash	State University of New York, Stony Brook
T-16	Steiner, A.	James M. Lattimer	State University of New York, Stony Brook
T-16	Steiner, A.	Paul J. Ellis	University of Minnesota
T-16	Talou, P.	O. Serot	CEA
T-16	Talou, P.	RIPL-3 members	RIPL-3 IAEA/OECD Coordinated Research Program
T-16	Talou, P.	B. Giraud	CEA
CNLS	Camacho, E.	Miguel Colon	External Collaborations
CNLS	Camacho, E.	Daniel Hernandez	External Collaborations
CNLS	Camacho, E.	U. Rodriguez-Bernier	External Collaborations
CNLS	Camacho, E.	Jon van Laarhoven	External Collaborations
CNLS	Camacho, E.	G. Karev	National Institutes of Health
CNLS	Camacho, E.	F. Berezovkaya	Howard University

Group	Name	Collaborator	Institution
CNLS	Ecke, R.	Thomas Halsey	Exxon Mobil Research
CNLS	Ecke, R.	Greg Eyink	Johns-Hopkins University
CNLS	Ecke, R.	Shiyi Chen	Johns-Hopkins University
CNLS	Ecke, R.	Jerry Gollub	Haverford College
CNLS	Huang, C.-F.	Victor H. L. Cheng	Optimal Synthesis Inc.
CNLS	Huang, C.-F.	Hui-ling Lu	Optimal Synthesis Inc.
CNLS	Huang, C.-F.	Tigao Simas	Indiana University
CNLS	Huang, C.-F.	Luis Mateus Rocha	Indiana University
CNLS	Huang, C.-F.	Stefan Bieniawski	Stanford University
CNLS	Huang, C.-F.	Bill Macready	NASA Ames Research Center
CNLS	Huang, C.-F.	David Wolpert	NASA Ames Research Center
CNLS	Kos, S.	Revaz Ramazashvili	Argonne National Laboratory
CNLS	Kos, S.	Bruce Davidson	Trieste
CNLS	Kos, S.	Jim Eckstein	University of Illinois
CNLS	Kos, S.	Peter Littlewood	Cambridge University
CNLS	Kos, S.	Andrew Millis	Columbia University
CNLS	Neufeld, Z.	Istvan Scheuring	ELTE, Budapest, Hungary
CNLS	Neufeld, Z.	E. Hernandez-Garcia	Mediterranean Institute of Advanced Studies
CNLS	Ramaprabhu, P.	Malcolm Andrews	Texas A&M University

Appendix H

Membership on Editorial Boards

Appendix H–Membership on Editorial Boards

Group	Name	Position	Journal
T-DO	Bishop, Alan	Editor	Physical Review Letters A
T-DO	Zurek, Wojciech	Member	Quantum Information Processing
T-3	Jones, Philip	Guest Editor	International Journal of High Performance Computing and Applications
T-3	Knoll, Dana	Associate Editor	Journal of Computational Physics
T-4	Cohen, James	Associate Editor	Physical Review Letters
T-4	Cohen, James	Editor	Atomic Processes in Plasmas: 14th APS Topical Conference on Atomic Processes in Plasmas
T-4	Collins, Lee	Member	Physical Review A
T-4	Collins, Lee	Associate Editor	Physical Review A
T-4	Kilcrease, David	Editor	Atomic Processes in Plasmas: 14th APS Topical Conference on Atomic Processes in Plasmas
T-4	Mazevet, Stephane	Editor	Atomic Processes in Plasmas: 14th APS Topical Conference on Atomic Processes in Plasmas
T-7	Holm, Darryl	Member	Dynamics of Partial Differential Equations
T-7	Holm, Darryl	Member	SIAM Journal on Applied Dynamical Systems
T-7	Hyman, James	Editor	Multiscale Modeling and Simulation
T-7	Hyman, James	Editor	Journal of Mathematics and Computing with Applications
T-7	Hyman, James	Editor	International Journal of High-Speed Computing
T-7	Hyman, James	Editor	SIAM Journal on Scientific Computing
T-7	Jiang, Yi	Associate Editor	Multiscale Modeling and Simulation
T-7	Moulton, John	Guest Editor	Numerical Linear Algebra with Applications
T-7	Shashkov, Mikhail	Member	Selcuk Journal of Applied Mathematics
T-7	Tartakovsky, Daniel	Member	Advances in Water Resources
T-7	Tartakovsky, Daniel	Editor	Reviews of Geophysics
T-8	Gupta, Rajan	Editor	International Journal of High-Speed Computing
T-10	Garcia, Angel	Member	BioMed Central Limited
T-10	Garcia, Angel	Member	Biophysical Journal
T-10	Garcia, Angel	Member	Molecular Simulation
T-10	Korber, Bette	Editor	HIV Immunology Database
T-10	Korber, Bette	Editor	HIV Sequence Database
T-10	Korber, Bette	Editor	Journal of Virology

Group	Name	Position	Journal
T-10	Leitner, Thomas	Editor	HIV Sequence Compendium
T-10	Leitner, Thomas	Editor	HIV Sequence Database
T-10	Pearson, John	Member	Physica D
T-10	Perelson, Alan	Member	Mathematical Biosciences and Engineering
T-10	Perelson, Alan	Member	Mathematical Medicine and Biology
T-10	Perelson, Alan	Member	Journal of Computational Biology
T-10	Perelson, Alan	Member	Journal AIDS
T-10	Perelson, Alan	Member	Bifurcation and Chaos
T-10	Perelson, Alan	Member	Complexity
T-10	Perelson, Alan	Member	Mathematical Biosciences
T-10	Perelson, Alan	Associate Editor	Bulletin of Mathematical Biology
T-10	Perelson, Alan	Member	Journal of Theoretical Biology
T-11	Lomdahl, Peter	Associate Editor	Journal of Physics C
T-11	Mozyrsky, Dima	Member	High Magnetic Fields Journal
T-12	Lesar, Richard	Member	Annual Review of Materials Research
T-12	Martin, Richard	Editor	Wiley Series in Theoretical Chemistry
T-12	Pratt, Lawrence	Member	Journal of Chemical Theory and Computation
T-12	Pratt, Lawrence	Member	Journal of Chemical Theory and Computation
T-12	Redondo, Antonio	Member	Journal of Computer-Aided Materials Design
T-12	Voter, Arthur	Member	Theoretical Chemistry Accounts
T-12	Voter, Arthur	Member	Journal of Chemical Physics
T-13	Ben-Naim, Eli	Member	Journal of Physics A
T-13	Ben-Naim, Eli	Member	Physical Review E
T-13	Berman, Gennady	Member	International Journal of Quantum Information
T-13	Doolen, Gary	Member	Transport Theory and Statistical Physics
T-13	Lapedes, Alan	Member	Journal of Computational Biology
T-13	Lapedes, Alan	Member	Neural Computational
T-13	Toroczkai, Zoltan	Co-Editor	Lecture Notes in Physics
T-15	Finn, John	Associate Editor	Physical Review Letters

Appendix H–Membership on Editorial Boards

Group	Name	Position	Journal
T-15	Turner, Leaf	Co-Editor	Journal of Physics A
T-16	Gibson, Benjamin	Editor	Physical Review C
T-16	Gibson, Benjamin	Member	Few Body Systems
T-16	Gibson, Benjamin	Co-Editor	Bulletin of the American Physical Society
T-16	Goldman, Terrance	Member	Modern Physics Letters A
T-16	Goldman, Terrance	Member	International Journal of Modern Physics E
CNLS	Ecke, Robert	Editor	American Institute of Physics

Appendix I

Journal Referees and Proposal Reviewers

Appendix I–Journal Referees and Proposal Reviewers

Group	Name		Journal or Organization
T-1	Chisolm	Eric	Phys. Rev. B.
T-1	Johnson	James	J. Mathematical Physics
T-1	Johnson	James	J. Phys. Chem.
T-1	Johnson	James	Phys. Letters
T-1	Johnson	James	Phys. Rev. B.
T-1	Johnson	James	Phys. Rev. E.
T-1	Johnson	James	Phys. Rev. Letters
T-1	Johnson	James	Shock Waves
T-1	Rudin	Sven	Phys. Rev. B.
T-1	Rudin	Sven	Phys. Rev. Letters
T-3	Kashiwa	Bryan	J. Computational Physics
T-3	Sahota	Manjit	Numerical Heat Transfer Journal
T-3	Schraad	Mark	International J. Solid Structures
T-4	Cohen	James	J. Phys. B.
T-4	Cohen	James	New Journal of Physics
T-4	Cohen	James	Phys. Rev. A.
T-4	Cohen	James	Phys. Rev. Letters
T-4	Cohen	James	Research Corporation
T-4	Cohen	James	U.S. Civilian Research and Development Foundation
T-4	Colgan	James	J. Phys. B.
T-4	Colgan	James	Phys. Rev. A
T-4	Cucchietti	Fernando	Phys. Rev.
T-4	Cucchietti	Fernando	Phys. Rev. Letters
T-4	Hu	Suxing	Phys. Letters A.
T-4	James	Daniel	American J. Physics
T-4	James	Daniel	Applied Optics
T-4	James	Daniel	Applied Phys. Letters
T-4	James	Daniel	J. of the European Optical Society A: Pure & Applied Optics
T-4	James	Daniel	J. of the Optical Society of America B: Nanotechnology
T-4	James	Daniel	J. Phys. A.
T-4	James	Daniel	J. Phys. A.
T-4	James	Daniel	Journal of Biological Physics
T-4	James	Daniel	Journal of Modern Optics
T-4	James	Daniel	Journal of Optics B
T-4	James	Daniel	New Journal of Physics
T-4	James	Daniel	Optical Engineering
T-4	James	Daniel	Optics Communications
T-4	James	Daniel	Optics Letters
T-4	James	Daniel	Phys. Letters A.
T-4	James	Daniel	Phys. Rev. A.
T-4	James	Daniel	Phys. Rev. E.
T-4	James	Daniel	Phys. Rev. Letters
T-4	James	Daniel	Speculations in Science and Technology
T-4	Keady	John	Defense Science
T-4	Keady	John	IEEE Transactions
T-6	Holz	Daniel	Astrophysical Journal
T-6	Holz	Daniel	Monthly Notices of the Royal Astronomical Society

Group	Name		Journal or Organization
T-6	Holz	Daniel	Phys. Rev. D.
T-6	Warren	Michael	Astrophysical J. Letters
T-6	Warren	Michael	Astrophysical Journal
T-7	Chartrand	Rick	Applied Mathematics Research Express
T-7	Hagberg	Aric	Nonlinearity
T-7	Hagberg	Aric	Phys. Letters A.
T-7	Hagberg	Aric	Phys. Rev. E.
T-7	Hagberg	Aric	Phys. Rev. Letters
T-7	Hagberg	Aric	Physica D
T-7	Hagberg	Aric	SIAM J. Sci. and Stat. Comp.
T-7	Hyman	James	J. Computational Physics
T-7	Hyman	James	J. Math. and Comp. in Sim.
T-7	Hyman	James	National Science Foundation
T-7	Hyman	James	Phys. Letters A.
T-7	Hyman	James	SIAM J. Mathematical Analysis
T-7	Hyman	James	SIAM J. Numerical Analysis
T-7	Hyman	James	SIAM J. Sci. Comp
T-7	Li	Weiye	Applied Mathematics Letters
T-7	Staley	Martin	SIAM J. Appl. Dyn. Sys.
T-7	Wohlberg	Brendt	EURASIP Journal on Applied Signal Processing
T-7	Wohlberg	Brendt	IEEE Electronics Letters
T-7	Wohlberg	Brendt	IEEE Proceedings - Vision, Image and Signal Proceeding
T-7	Wohlberg	Brendt	IEEE Transactions on Image Processing
T-7	Wohlberg	Brendt	IEEE Transactions on Signal Processing
T-7	Wohlberg	Brendt	Journal of Electronic Imaging
T-7	Wohlberg	Brendt	Journal of Visual Communication and Image Representation
T-7	Wohlberg	Brendt	Pattern Analysis and Applications
T-7	Wohlberg	Brendt	Signal Processing: Image Communication
T-8	Friedland	Alexander	J. High Energy Physics
T-8	Friedland	Alexander	Phys. Rev. D.
T-8	Friedland	Alexander	Phys. Rev. Letters
T-8	Habib	Salman	Classical and Quantum Gravity
T-8	Habib	Salman	Europhysics Letters
T-8	Habib	Salman	J. Mathematical Physics
T-8	Habib	Salman	Phys. Rev. A.
T-8	Habib	Salman	Phys. Rev. D.
T-8	Habib	Salman	Phys. Rev. Letters
T-8	Nieto	Michael	Europhysics Letters
T-8	Nieto	Michael	General Relativity and Gravitation
T-8	Nieto	Michael	Metrologia
T-8	Nieto	Michael	Optics Letters
T-8	Nieto	Michael	Phys. Letters A.
T-8	Nieto	Michael	Phys. Rev. A
T-8	Nieto	Michael	Phys. Rev. D.
T-8	Nieto	Michael	Phys. Rev. E.
T-8	Nieto	Michael	Phys. Rev. Letters
T-10	Macken	Catherine	Public Good Science Fund, Foundation for Research, Science and Technology
T-11	Albers	Robert	DOE Office of Basic Energy Science

Appendix I–Journal Referees and Proposal Reviewers

Group	Name		Journal or Organization
T-11	Albers	Robert	National Science Foundation
T-11	Albers	Robert	Phys. Rev. B.
T-11	Albers	Robert	Phys. Rev. Letters
T-11	Boulaevskii	Lev	DOE Office of Basic Energy Science
T-11	Boulaevskii	Lev	Europhysics Letters
T-11	Boulaevskii	Lev	National Science Foundation
T-11	Boulaevskii	Lev	Phys. Letters
T-11	Boulaevskii	Lev	Physica C
T-11	Boulaevskii	Lev	Physics Review
T-11	Hruska	Marina	Phys. Rev. B.
T-11	Mozyrsky	Dima	J. of Physics
T-11	Mozyrsky	Dima	Phys. Rev. Letters
T-11	Ortiz	Gerardo	European J. Physics B
T-11	Ortiz	Gerardo	J. Phys. A.
T-11	Ortiz	Gerardo	Phys. Letters A.
T-11	Ortiz	Gerardo	Phys. Rev. A.
T-11	Ortiz	Gerardo	Phys. Rev. B.
T-11	Ortiz	Gerardo	Phys. Rev. E.
T-11	Ortiz	Gerardo	Phys. Rev. Letters
T-12	Chao	Sheng Der	J. Phys. Chem.
T-12	Martin	Richard	Chemical Physics Letters
T-12	Martin	Richard	DOE Office of Basic Energy Science
T-12	Martin	Richard	Inorganic Chemistry
T-12	Martin	Richard	J. American Chemical Society
T-12	Martin	Richard	J. Chemical Physics
T-12	Martin	Richard	J. Phys. Chem.
T-12	Martin	Richard	National Science Foundation
T-12	Martin	Richard	Philosophical Magazine
T-12	Martin	Richard	Phys. Rev. A.
T-12	Martin	Richard	Phys. Rev. B.
T-12	Martin	Richard	Phys. Rev. Letters
T-12	Pack	Russell	Chemical Physics Letters
T-12	Pack	Russell	J. Chemical Physics
T-12	Pack	Russell	J. Chemical Physics
T-12	Pack	Russell	J. Phys. Chem.
T-12	Pack	Russell	Phys. Rev. A.
T-12	Pack	Russell	Science
T-12	Tretiak	Sergei	Chemical Physics Letters
T-12	Tretiak	Sergei	Computational Materials Science
T-12	Tretiak	Sergei	J. American Chemical Society
T-12	Tretiak	Sergei	J. American Chemical Society
T-12	Tretiak	Sergei	J. Chemical Physics
T-12	Tretiak	Sergei	J. Phys. Chem.
T-12	Tretiak	Sergei	National Academy of Sciences
T-12	Tretiak	Sergei	Phys. Rev. Letters
T-12	Tretiak	Sergei	Physica B
T-12	Tretiak	Sergei	Physica D
T-12	Tretiak	Sergei	Science

Group	Name		Journal or Organization
T-12	Voter	Arthur	J. Chemical Physics
T-12	Voter	Arthur	National Science Foundation
T-12	Voter	Arthur	Philosophical Magazine
T-12	Voter	Arthur	Phys. Rev. B.
T-12	Voter	Arthur	Phys. Rev. Letters
T-12	Voter	Arthur	Surface Science
T-14	Kadau	Kai	Nanotechnology
T-14	Kadau	Kai	Phys. Rev. B.
T-14	Strachan	Alejandro	Modeling & Simulation in Materials Science & Engineering
T-14	Strachan	Alejandro	Phys. Rev. B.
T-14	Strachan	Alejandro	Phys. Rev. Letters
T-16	Carlson	Joseph	Nucl. Physics
T-16	Carlson	Joseph	Phys. Letters B.
T-16	Carlson	Joseph	Phys. Rev. C.
T-16	Carlson	Joseph	Phys. Rev. Letters
T-16	Ginocchio	Joseph	Annals of Physics
T-16	Ginocchio	Joseph	J. Mathematical Physics
T-16	Ginocchio	Joseph	Nucl. Physics A
T-16	Ginocchio	Joseph	Phys. Letters
T-16	Ginocchio	Joseph	Phys. Letters A.
T-16	Ginocchio	Joseph	Phys. Letters B.
T-16	Ginocchio	Joseph	Phys. Rev. C.
T-16	Goldman	Terrance	Australian Research Council
T-16	Goldman	Terrance	Department of Energy
T-16	Goldman	Terrance	J. Phys. G.
T-16	Goldman	Terrance	National Science Foundation
T-16	Goldman	Terrance	Nucl. Physics A
T-16	Goldman	Terrance	Phys. Letters A.
T-16	Goldman	Terrance	Phys. Rev. C.
T-16	Hale	Gerald	Nucl. Physics
T-16	Hale	Gerald	Nuclear Science and Engineering
T-16	Hale	Gerald	Phys. Rev. C.
T-16	Madland	David	Nucl. Physics
T-16	Madland	David	Nuclear Science and Engineering
T-16	Madland	David	Phys. Rev.
T-16	Madland	David	Phys. Rev. Letters
T-16	Möller	Peter	J. Phys. G.
T-16	Möller	Peter	Nature
T-16	Möller	Peter	Nucl. Physics
T-16	Möller	Peter	Phys. Rev. C.
T-16	Möller	Peter	Phys. Rev. C.
T-16	Möller	Peter	Phys. Rev. Letters
T-16	Möller	Peter	Phys. Rev. Letters
T-16	Page	Philip	Nucl. Phys. B.
T-16	Page	Philip	Phys. Letters B.
T-16	Page	Philip	Phys. Rev. D.
T-16	Pitcher	Eric	Journal of Nuclear Science and Technology
T-16	Reddy	Sanjay	Phys. Rev. C.

Appendix I–Journal Referees and Proposal Reviewers

Group	Name		Journal or Organization
T-16	Reddy	Sanjay	Phys. Rev. D.
T-16	Reddy	Sanjay	Phys. Rev. Letters
T-16	Rupak	Gautam	Phys. Rev. C.
T-16	Sierk	Arnold	Canadian Journal of Physics
T-16	Sierk	Arnold	Nucl. Physics A
T-16	Sierk	Arnold	Phys. Letters B.
T-16	Steiner	Andrew	Phys. Rev. Letters
CNLS	Neufeld	Zoltan	Europhysics Letters
CNLS	Neufeld	Zoltan	Phys. Rev. E.
CNLS	Neufeld	Zoltan	Phys. Rev. Letters
CNLS	Neufeld	Zoltan	Physics of Fluids
CNLS	Ramaprabhu	Praveen	Journal of Fluids Engineering

Appendix J

Professorships, Committees, and Advisory Board Memberships

Appendix J–Professorships, Committees, and Advisory Board Memberships

Group	Name		Institution, Committee, or Board	Position
T-DO	Bishop	A.	Colorado State University, Physics	Adjunct Professor
T-DO	Bishop	A.	Selection Committee for the Pnevmatikos Award in Nonlinear Science	Member
T-DO	Bishop	A.	University of New Mexico, Physics	Adjunct Professor
T-DO	Bishop	A.	External Advisory Committee, National Science Foundation Institute of the Americas for Interdisciplinary Sciences (University of New Mexico)	Member
T-DO	Bishop	A.	Science Advisory Committee, National Science Foundation Materials Science and Engineering Center, University of California at Santa Barbara	Advisor
T-DO	Dalvit	D.	Advisory Committee of the International Workshop on Dynamical Casimir Effect	Member
T-DO	Strottman	D.	Workshop on Fundamental Science Supporting Stockpile Stewardship	Co-Organizer
T-DO	Strottman	D.	Symposium on Combinatorics, Special Functions and Physics	Co-Organizer
T-DO	Strottman	D.	Doctoral Defense Committee for Long Ha	Advisor
T-DO	Younger	S.	University of New Mexico	Adjunct Professor
T-DO	Younger	S.	Weapons Wilson International Center of Scholars	Senior Policy Scholar
T-DO	Younger	S.	Nuclear Weapons Advisory Committee of Sandia National Laboratories	Member
T-DO	Younger	S.	Board of Advisors of the School of Philosophy of the Catholic University of America	Member
T-DO	Younger	S.	Strategic Advisory Group of the US Strategic Command	Member
T-DO	Younger	S.	Threat Reduction Advisory Committee	Member
T-1	Clements	B.	Technical Coordination Group for Computation for the DoD/DOE Memorandum of Understanding Project	Member
T-1	Clements	B.	Project Leader for Polymer Behavior Under Dynamic Loading	Chair
T-3	Beyerlein	I.	LANL Postdoctoral Advisor	Advisor
T-3	Hunke	E.	Polar Climate Working Group, Community Climate System	Co-chair
T-3	Jones	P.	DOE SciDAC Proposal Review Committee	Member
T-3	Jones	P.	LANL Operational Efficiency Software Quality IPT	Member
T-3	Smith	R.	MEXT High Resolution Steering Committee	Member
T-3	Smith	R.	Ocean Model WG/NCAR Community Climate System	Co-chair
T-3	VanderHeyden	W.	Java Grande Editorial Advisory Board	Member
T-4	Abdallah	J.	Interaction of Heavy Ion Beams with Matter for the GSI-Heavy Ion Beam Accelerator in Darmstadt, Germany	Advisor
T-4	Cohen	J.	LANL Library Advisory Board	Chair
T-4	Cohen	J.	14th APS Topical Conference on Atomic Processes in Plasmas, Santa Fe, April 19-22, 2004	Chair
T-4	Collins	L.	Focus Session: APS March Meeting on Matter at Extreme Conditions	Co-organizer
T-4	Collins	L.	Los Alamos Summer School in the Physical Sciences	Director
T-4	Collins	L.	University of New Mexico	Adjunct Professor
T-4	Collins	L.	Undergraduate Research Session: APS Division of Atomic, Molecular, and Optical Physics Conference	Co-organizer
T-4	Collins	L.	APS, Division of Computational Physics	Co-chair
T-4	Collins	L.	APS, Division of Atomic, Molecular, and Optical Physics	Executive Committee
T-4	James	D.	Program Committee for Southwestern Quantum Information Technology (SQuInT) Annual Meeting	Member
T-4	Kilcrease	D.	International Workshop on the Radiative Properties of Hot Dense Matter	Co-Organizer

Group	Name		Institution, Committee, or Board	Position
T-4	Kilcrease	D.	Los Alamos County Annual Science Fair	Advisor
T-4	Mazevet	S.	Program Committee, 14th APS Topical Conference on Atomic Processes in Plasmas, Santa Fe, April 19-22, 2004	Member
T-4	Mazevet	S.	14th APS Topical Conference on Atomic Processes in Plasmas, Santa Fe, NM, April 19-22, 2004	Co-chair
T-4	Mazevet	S.	Los Alamos Summer School on Computational Physics	Advisor
T-4	Sherrill	M.	14th APS Topical Conference on Atomic Processes in Plasmas, Santa Fe, April 19-22, 2004	Co-organizer
T-4	Timmermans	E.	NSF Panel Discussion for Atomic Physics	Member
T-6	Herwig	F,	Hubble Space Telescope Review Panel, Cycle 13	Member
T-6	Jungman	G.	Santa Fe Summer Cosmology Workshop	Co-organizer
T-6	Jungman	G.	LANSCE Nuclear Physics Program Advisory Committee (Defense Subcommittee)	Member
T-6	Timmes	F.	University of Arizona	Adjunct Professor
T-6	Warren	M.	LANL IA-Linux Committee	Member
T-6	Warren	M.	NASA Applied Information Science Program Review	Member
T-7	Berndt	M.	NSF Review Panel	Member
T-7	Dendy	J.	Copper Mountain Multigrid Conferences	Co-chair
T-7	Hagberg	A.	DOE Computational Science Graduate Fellowship	LANL Coordinator
T-7	Holm	D.	Cascade Dynamics: Fundamentals and Modeling, Bishop's Lodge, Santa Fe, August 16-20, 2004	Co-organizer
T-7	Holm	D.	Turbulence Working Group Annual Workshop	Organizer
T-7	Holm	D.	Turbulence Working Group	Member
T-7	Hyman	J.	SIAM Council	Chair
T-7	Hyman	J.	SIAM Board of Trustees	Member
T-7	Hyman	J.	Board of Directors for International Congress of Industrial and Applied Mathematics	Member
T-7	Hyman	J.	Organizing Committee for the International Congress in Computational Mechanics	Member
T-7	Hyman	J.	University of Arizona	Adjunct Professor
T-7	Hyman	J.	Joint Policy Board for Mathematical Sciences	Member
T-7	Hyman	J.	Science Policy Board for the Mathematical Sciences	Chair
T-7	Moulton	J.	Graduate Studies Faculty, Colorado University at Boulder	Member
T-7	Moulton	J.	Program Committee for the Copper Mountain Conference on Multigrid Methods	Member
T-7	Shashkov	M.	IMA Workshop on Compatible Spatial Discretizations for PDEs	Co-organizer
T-7	Shashkov	M.	Minisymposia on Mimetic Methods for Diffusion and Transport Equations at 5th Symposium of the Los Alamos Computer Science Institute	Co-organizer
T-7	Swart	P.	LDRD Point of Contact for T Division	Member
T-7	Swart	P.	UC-LANL Cooperative Agreement on Research and Education	Member
T-7	Swart	P.	CNLS Executive Committee	Member
T-7	Tartakovsky	D.	Board of Experts of the Italian Ministry of Education, University and Scientific Research	Member
T-7	Tartakovsky	D.	Grant Review Committee of the Italian Ministry for Universities and Research	Member
T-7	Wohlberg	B.	LANL Team Associated with IPAM/UCLA RIPS	Member
T-7	Wohlberg	B.	Technical Program Committee for IEEE International Conference on Image Processing 2004	Member
T-8	Gupta	R.	Los Alamos Strategic Studies Program	Member

Appendix J–Professorships, Committees, and Advisory Board Memberships

Group	Name		Institution, Committee, or Board	Position
T-8	Gupta	R.	Institutional Computing Advisory Committee	Member
T-8	Gupta	R.	Director's Colloquium Committee	Chair
T-8	Habib	S.	Aspen Workshop on Coherence and Dissipation in Quantum Systems	Organizer
T-8	Habib	S.	2004 QUEST Workshop	Organizer
T-8	Habib	S.	Structure Formation/Dark Matter Workshop	Organizer
T-8	Mottola	E.	National Science Foundation, Gravitational Physics Panel	Member
T-10	Frauenfelder	H.	UCSD Physics Department	Advisor
T-10	Frauenfelder	H.	LCLS Scientific Advisory Committee	Advisor
T-10	Frauenfelder	H.	Center for Theoretical Biological Physics, UCSD	Member
T-10	Frauenfelder	H.	Laboratory of Fluorescence Dynamics, University of Illinois	Member
T-10	Frauenfelder	H.	Physics Department, University of Illinois at Urbana-Champaign	Member
T-10	Goldstein	B.	Santa Fe Institute Science Board	Member
T-10	Korber	B.	Santa Fe Institute Scientific Steering Committee	Member
T-10	Korber	B.	University of New Mexico Medical School, Department of Molecular Genetics and Microbiology	Adjunct Professor
T-10	Korber	B.	Santa Fe Institute	Member
T-10	Leitner	T.	SPREAD (European consortium to monitor spread of drug resistant HIV)	Member
T-10	Leitner	T.	HIV Dynamics and Evolution	Co-Organizer
T-10	Leitner	T.	CATCH (European consortium to evaluate present effects of drug resistant HIV)	Member
T-10	Leitner	T.	DIMACS Working Group on Phylogenetic Trees and Rapidly Evolving Diseases	Member
T-10	Macken	C.	Neuraminidase Inhibitors Susceptibility Network	Member
T-10	McMahon	B.	Oklahoma State University, Physics	Adjunct Professor
T-10	Perelson	A.	Session on Theoretical Immunology, Computational and Mathematical Population Dynamics Conference	Co-Organizer
T-10	Perelson	A.	11th International Viral and Immune Dynamics Conference	Chair
T-10	Perelson	A.	Board of Governors, Mathematical Biosciences Institute	Advisor
T-10	Perelson	A.	Santa Fe Institute Science Board	Advisor
T-11	Albers	R.	National Research Council	Advisor
T-11	Albers	R.	Associateship Programs Panel Review	Member
T-11	Gubernatis	J.	Commission on Computational Physics of the International Union of Pure and Applied Physics	Member
T-11	Lomdahl	P.	Airborne Systems, Ltd. (UK)	Member
T-11	Saxena	A.	Interplay of Magnetism and Structure in Functional Materials	Chair
T-11	Saxena	A.	APS March Meeting	Chair
T-11	Saxena	A.	Dynamic Energy Landscapes and Functional Systems Conference	Chair
T-11	Saxena	A.	Quantum and Semiclassical Molecular Dynamics of Nanostructures Workshop	Chair
T-11	Saxena	A.	National Congress on Materials Symposium	Chair
T-11	Saxena	A.	APS March Meeting Focus Session	Co-organizer
T-11	Smith	D.	Defense Sciences Research Council	Member
T-12	Henson	N.	LANL Research Library Chemistry and Materials Science Advisory Board	Member
T-12	Kendrick	B.	CNLS Workshop on Quantum and Semiclassical Molecular Dynamics of Nanostructures	Co-Organizer
T-12	Kress	J.	Organizing Committee of the 14th APS Topical Conference on Atomic Processes in Plasmas	Member
T-12	Lesar	R.	LANL University Relations Council	Member

Group	Name		Institution, Committee, or Board	Position
T-12	Lesar	R.	Review Panel of the Army Basic Research Program in Materials, Chemistry and Matter	Member
T-12	Lesar	R.	Dislocations Symposium, TMS Annual Meeting	Organizer
T-12	Lesar	R.	2004 Gordon Conference on Physical Metallurgy	Co-chair
T-12	Lesar	R.	Biomaterials Symposium, International Conference on Multiscale Materials Modeling	Organizer
T-12	Lesar	R.	Biomaterials Symposium, PRICA	Organizer
T-12	Lesar	R.	Oversight Board of the Computational Materials Science Network, DOE/OBES, Division of Materials Science	Member
T-12	Martin	R.	DOE Virtual Center for Predictive Capabilities in Strongly Correlated Electronic Systems	Member
T-12	Martin	R.	DOE/NSF Workshop Actinides in the 21st Century, Theory Subgroup	Chair
T-12	Martin	R.	NSF Large Resources Allocation Committee	Member
T-12	Martin	R.	NSF Medium Resources Allocation Committee	Member
T-12	Redondo	A.	Core Team, LANL Enterprise Project	Member
T-12	Redondo	A.	Renssaeler Polytechnic Institute Executive Committee, NSF Nanoscale Science and Engineering Center for Directed Assembly of Nanostructures	Member
T-12	Redondo	A.	Thrust Leaders Committee, Center for Integrated Nanotechnologies	Member
T-12	Redondo	A.	External Review Committee, Center for Advanced Interdisciplinary Research in Materials, University of Chile	Member
T-12	Tretiak	S.	LDRD/ER Nanotechnology and Semiconductors Subcategory Selection Team	Member
T-12	Tretiak	S.	CNLS Summer Student Program	Organizer
T-12	Tretiak	S.	CNLS Executive Committee	Member
T-12	Tretiak	S.	P/T Colloquium Series	Co-organizer
T-12	Tretiak	S.	24th CNLS Annual Conference on Statistical Physics of Macromolecules: From Electronic Structure to Fluid Mechanics	Co-organizer
T-12	Tretiak	S.	CNLS Conference on Excited State Processes in Electronic and Bio-nanomaterials	Organizer
T-12	Tretiak	S.	US Department of State Science Centers Grant Review Committee	Member
T-12	Tretiak	S.	NSF Grant Review Committee	Member
T-12	Tretiak	S.	ACS Petroleum Research Fund Grant Review Committee	Member
T-13	Ben-Naim	E.	National Space and Aeronautics Administration	Member
T-13	Ben-Naim	E.	National Science Foundation	Member
T-13	Berman	G.	Fluctuations and Noise Symposium	Organizer
T-14	Kober	E.	Technical Support Team for Caltech ASCI/ASAP Program	LANL Coordinator
T-14	Sewell	T.	Louisiana State University Board of Regents	Advisor
T-14	Sewell	T.	Science and Engineering Advisory Council	Member
T-14	Sewell	T.	DoD Reviewer/Advisor for MURI/DVRI NT Program	Advisor
T-14	Sewell	T.	ASCI/ASAP Tri-Lab Support Team for University of Utah	Member
T-14	Sewell	T.	LDRD/ER Physical Chemistry Subcategory Selection Team	Member
T-15	Glasser	A.	Sherwood Fusion Energy Conference Executive Committee	Member
T-15	Glasser	A.	DOE/OFES Theory Coordinating Committee	Member
T-15	Weisheit	J.	DOE Office of Science Panel on Inertial Fusion Energy	Member
T-15	Weisheit	J.	International Conference on Strongly Coupled Coulomb Systems	Member
T-15	Weisheit	J.	High Energy Density Physics and Astrophysics Division, LLNL	Member
T-15	Weisheit	J.	Physics and Advanced Technologies Directorate, LLNL	Member
T-16	Carlson	J.	Neutrino 2006 Local Organizing Committee	Member
T-16	Carlson	J.	LANL Associate Director for Strategic Research Search Committee	Member

Appendix J–Professorships, Committees, and Advisory Board Memberships

Group	Name		Institution, Committee, or Board	Position
T-16	Carlson	J.	12th International Conference on Recent Progress in Many-Body Physics	Organizer
T-16	Carlson	J.	2007 DNP Fall Meeting	Organizer
T-16	Carlson	J.	APS DNP Nominations Committee	Member
T-16	Carlson	J.	International Advisory Committee for Recent Progress in Many-Body Theories (1998–present)	Member
T-16	Carlson	J.	NSAC Nuclear Theory Committee	Member
T-16	Chadwick	M.	Search Committee for ASC V&V Program Manager	Chair
T-16	Chadwick	M.	Search Committee for Deputy ASC and EAV Directors	Member
T-16	Chadwick	M.	Search Committee for LANL Applied Physics Division Leader	Member
T-16	Chadwick	M.	US Evaluation Committee for CSEWG	Chair
T-16	Chadwick	M.	APS Division of Nuclear Physics Committee on Homeland Security	Member
T-16	Chadwick	M.	National Security Fellow Recruitment Committee	Chair
T-16	Chadwick	M.	International Conference on Nuclear Data for Science and Technology	Co-chair
T-16	Friar	J.	International Advisory Committee, 3rd Asia-Pacific Conference on Few-Body Problems in Physics (2005)	Advisor
T-16	Friar	J.	TUNL Advisory Committee, 1994-present	Member
T-16	Gibson	B.	APS Few-Body Systems Topical Group Executive Committee	Member
T-16	Gibson	B.	APS Division of Nuclear Physics Program Committee	Member
T-16	Gibson	B.	APS Division of Nuclear Physics Executive Committee	Member
T-16	Gibson	B.	Brooklyn College of the CUNY Physics Department External Review Committee	Member
T-16	Gibson	B.	Particles and Nuclei International Conference PANIC'05	Member
T-16	Gibson	B.	APS Division of Nuclear Physics Joint Meeting with the Japanese Physical Society (2005)	Organizer
T-16	Gibson	B.	LOWq: Workshop on Electromagnetic Nuclear Reactions at Low Momentum Transfer (2005)	Advisor
T-16	Gibson	B.	3rd Asia-Pacific Conference on Few-Body Problems in Physics (2005)	Advisor
T-16	Gibson	B.	ECT program on Nuclear Forces and QCD (2005)	Co-organizer
T-16	Gibson	B.	APS Division of Nuclear Physics Fall Meeting	Organizer
T-16	Gibson	B.	19th European Conference on Few-Body Problems in Physics	Advisor
T-16	Gibson	B.	Division of Nuclear Physics program for the APS Spring Meeting	Organizer
T-16	Gibson	B.	KEK PS External Review Committee	Member
T-16	Ginocchio	J.	LANL Frontiers in Science Public Lecture Series	Chair
T-16	Goldman	T.	Local Organizing Committee PANIC'05	Member
T-16	Hale	G.	DOE Advisory Panel on Low Energy Nuclear Reactions	Member
T-16	Hale	G.	Astrophysics Task Force of the US DOE Nuclear Data Program	Member
T-16	Hale	G.	Astrophysics Data Steering Committee	Member
T-16	Herczeg	P.	Search Committee for LANL P-25 Deputy Group Leader	Member
T-16	Kawano	T.	WPEC Subgroup 20, Covariance Matrix Evaluation and Process in the Resolved/Unresolved Resonance Regions	Chair
T-16	Kawano	T.	Atomic Energy Society of Japan, Nuclear Data Division	Member
T-16	Madland	D.	International Conference on Nuclear Data for Science and Technology	Member
T-16	Möller	P.	LANSCE Program Advisory Committee	Member
T-16	Page	P.	Advisor for website QCD Exotica	Member
T-16	Page	P.	Advisor for New Science Facility at GSI	Member
T-16	Pitcher	E.	IAEA Specialists' Panel on Low-Power Accelerator-Driven Neutron Sources	Member
T-16	Sierk	A.	International Conference on Nuclear Data for Science and Technology	Member
T-16	Talou	P.	International Conference ND2004	Member

Appendix K

Conferences, Workshops, and Seminar Series

Appendix K–Conferences, Workshops, and Seminar Series

2004 Conferences and Workshops

Title	Sponsor(s)	Dates
Workshop on Implicit Turbulence Modeling	CNLS, IGPP	January 9-16, 2004
Arizona Days 2004	CNLS	January 30-31, 2004
Center for Simulating Dynamic Response of Materials (ASCI/ASAP University Alliance)	CalTech, T-14	February 2, 2004
Southwestern Quantum Information Technology (SQuInT) Annual Meeting, San Diego, CA	T-4	February 2-22, 2004
Interplay of Magnetism and Structure in Functional Materials, Benasque, Spain	T-11, University of Barcelona	February 9-13, 2004
Lowell Fest	T-8, T-DO	February 27-29, 2004
Intrinsic Inhomogeneity in Multiferroic Materials, American Physical Society March Meeting Focused Session, Montreal, Quebec, Canada	T-11	March 22-26, 2004
The 14th APS Conference on Atomic Processes in Plasmas, Santa Fe, NM	T-4	April 19-22, 2004
IMA "Hot Topics" Workshop: Compatible Spatial Discretizations for Partial Differential Equations	T-7, University of Minnesota, SNL, Carnegie Mellon University	May 11-15, 2004
CNLS 24th Annual Conference on Statistical Physics of Macromolecules: From Electronic Structure to Fluid Dynamics	CNLS	May 17-21, 2004
Second SPIE International Symposium on Fluctuations and Noise, Gran Canaria, Spain	T-13	May 26-28, 2004
Los Alamos Summer School	T-4	June 7-August 13, 2004
SF04 Cosmology Summer Workshop	T-8, T-DO, IGPP, Fermilab, University of Chicago	July 5-23, 2004
Supernova Theory and Nucleosynthesis	University of Washington, T-6, IGPP, LLNL	July 15-17, 2004
Quantum and Semiclassical Molecular Dynamics of Nanostructures	CNLS, T-12, T-DO	July 15-17, 2004
Physical Metallurgy Gordon Conference	T-12	July 25-30, 2004
Statistical Physics of Complex Systems	CNLS, T-13	July 26-August 6, 2004
Beyond the Higgs	T-8, T-DO	August 8-14, 2004
Quantum Enabled Science and Technology (QUEST) 2004	T-8	August 9-13, 2004

Title	Sponsor(s)	Dates
Chemical Enrichment of the Early Universe, Santa Fe, NM	IGPP, T-6, SciDAC SSC, Joint Institute for Nuclear Astrophysics	August 9-13, 2004
Cascade Dynamics: Fundamentals and Modeling	CNLS	August 16-20, 2004
12th International Conference on Recent Progress in Many-Body Theories, Santa Fe, NM	T-16, T-11, T-4	August 23-27, 2004
International Conference on Nuclear Data for Science and Technology	T-16, LANSCE, OECD Nuclear Energy Agency	September 26-October 1, 2004
Turbulence Working Group Workshop	CNLS	December 5-6, 2004

2004 P/T (Physics/Theoretical Divisions) Colloquium Series

Speaker and Affiliation	Title	Host	Date
Umar Mohideen UC Riverside	Exploring the Quantum Vacuum Through the Casimir Effect	T	01/08/04
Gary Olsen University of Illinois at Urbana-Champaign	A Tree in the Jungle of Gene Histories: Or, Don't Trip on the Vines	T	01/15/04
Dana Berkeland Los Alamos National Laboratory	Searching for Non-Randomness of Quantum Mechanics with Trapped Ions	P	01/22/04
Emily Carter UC Los Angeles	Linking Quantum and Continuum Mechanics to Study Mechanical Response of Materials	T	01/29/04
Ming Liu Los Alamos National Laboratory	RHIC/PHENIX	P	02/05/04
Neil Ashcroft Cornell University	Higher Superconductivity in the Compressed Lower Elements	T	02/12/04
Steven K. Dower University of Sheffield	Signaling Network in Inflammation and Innate Immunity	T	02/19/04
Louis Rosocha Los Alamos National Laboratory	Plasma-Assisted Combustion	P	02/26/04
Ann Nelson University of Washington	Experimental Tests of Dark Energy from Mass Varying Neutrinos via Neutrino Oscillation Experiments	P	03/04/04
Jose N. Onuchic UC San Diego	Exploring the Protein Funnel Energy Landscape for Folding and Function	T	03/11/04
Margaret Murnane JILA (NIST/CU)	Multiphoton EUV Photonics	P	03/25/04
Rolfe Petschek Case Western Reserve	Ferroelectric Liquid Crystal: Realities and Possibilities	P	04/01/04
Hoi-Kwong Lo University of Toronto	From Quantum Cheating to Quantum Security	P	04/08/04
David Montgomery Los Alamos National Laboratory	Towards Developing a Fundamental Understanding of Laser-Plasma Interaction Physics	P	04/15/04
John Guckenheimer Cornell University	Canards, Chaos, and Relaxation Oscillations	T	04/22/04
Mark Ratner Northwestern University	Molecular Nanostructures: Fabrication and Transport Aspects	T	04/29/04
David Srolovitz Princeton University	Computational Modeling of the Dynamics of Dislocations	T	05/06/04
Julio M. Ottino Northwestern University	Dynamics of Segregation, Mixing, and Coarsening of Granular Matter	T	05/13/04
John D. Weeks University of Maryland	Screening, Structure, and Simulations of Ionic Fluids: The Long and Short of It	T	05/27/04

Speaker and Affiliation	Title	Host	Date
Boris Ya. Zeldovich University of Central Florida	Bi-frequency Pendulum on a Rotary Platform: Modeling Various Optical Phenomena	T	06/03/04
Don Rej Los Alamos National Laboratory	High-Power RF Linac for the Spallation Neutron Source	P	09/02/04
Randy Bartels Colorado State University	Harnessing Controlled Molecular Dynamics	P	09/09/04
Philipp Kronberg Los Alamos National Laboratory	The Transfer of Black Hole Energy Into Intergalactic Space	P	09/16/04
Bruce Remington Lawrence Livermore National Laboratory	A Path to Extreme Materials Science: Progress, Plans, and Challenges	P	09/23/04
Joao Magueijo Imperial College	Could the Speed of Light Change?	P	09/30/04
Ernest R. Davidson University of Washington	Theoretical Modeling of Single Molecule Magnets	T	10/07/04
Michael Romalis Princeton University	Atomic Magnetometers for Fundamental Physics and Applications	P	10/14/04
Marc Mezard Orsay, France	Phase Transitions in Optimization Problems	T	10/21/04
Robert Ehrlich George Mason University	Seven Reasons Why Neutrinos May be Faster-than-Light Tachyons	P	10/28/04
Ivan Vitev Los Alamos National Laboratory	The Little Bang?	P	11/04/04
Cristian D. Batista Los Alamos National Laboratory	Electronic Ferroelectricity	P	11/18/04
Wick Haxton University of Washington	Deep Underground Science	T	12/02/04
George Eleftheriades University of Toronto	Negative-Refractive Index Transmission-Line Metamaterials and Electromagnetic Applications	P	12/16/04

2004 Quantum Lunch Series

Speaker and Affiliation	Title	Date
Alexander Cronin University of Arizona	Atom Optics and van der Vaals Interactions	01/22/04
Patrick Hayden California Institute of Technology	Quantum Communications: A Real Enigma	01/28/04
W. H. Zurek Los Alamos National Laboratory	Probabilities (and More) from Envariance	01/29/04
Eric Burt Jet Propulsion Laboratory	The Physics Package Design for the PARCS Project	02/04/04
Joe Renes University of New Mexico	Spherical Codes and Designs in Quantum Cryptography	02/05/04
Bogdan Damski University of Hannover	Shock Waves in Ultracold Atomic Gases	02/19/04
George Chapline Lawrence Livermore National Laboratory	Quantum Computing Near to an Event Horizon	02/26/04
William K. Wootters Williams College	Picturing Qubits in Phase Space	03/25/04
Aaron E. Leanhardt Massachusetts Institute of Technology	Guiding, Splitting, and Interfering Bose-Einstein	04/01/04
Hoi-Kwong Lo University of Toronto	Communication Complexity and Security of Quantum Key Distribution	04/08/04
Tien Dung Kieu Swinburne University of Technology	An Anatomy of a Quantum Adiabatic Algorithm that Transcends Turning Computability	04/22/04
Matthew Bigelow University of Rochester	Ultraslow and Superluminal Light Propagation in Room-Temperature Solids	04/29/04
Markus Aspelmeyer Universitaet Wien	Exploring Quantum Physics with Entangled Photons	05/03/04
Paulo Maia Neto Universidade Federal do Rio de Janeiro	Dynamical Casimir Effect and Its Applications	05/06/04
Tanmoy Bhattacharya Los Alamos National Laboratory	Active Feedback Cooling in Cavity QED and Nanomechanics	05/27/04
Daniel James Los Alamos National Laboratory	Quantum State Teleportation	06/03/04
Paul Kwiat University of Illinois, Urbana	New Directions in Optical Quantum Technologies	06/17/04
Yuriy Pershyn Clarkson University	Evolution of Electron Spin Polarization in Semiconductor Heterostructures	07/01/04
Keith Schwab National Security Agency	Mechanics at the Quantum Limit	07/08/04
Ivan Deutsch University of New Mexico	Quantum Control and Measurement of Ultra-cold Atoms	07/15/04

Speaker and Affiliation	Title	Date
John Mamin IBM Almaden Research Center	Single Spin Detection by Magnetic Resonance Force Microscopy	09/02/04
Steve Fenner University of South Carolina	Physical Interactions for Fast Quantum Computation	09/09/04
Paul S. Jessen University of Arizona	Continuous Quantum Measurement and Control of Atomic Spin Ensemble	09/16/04
Victor I. Klimov Los Alamos National Laboratory	Functional Nanocrystal-Quantum-Dot Assemblies: Putting Dots To Work	09/23/04
Gavin Brennen National Institute of Standards and Technology	Time Reversal Symmetry and the Kinematics and Dynamics of Many Qubit Entanglement	09/30/04
James (Trey) V. Porto National Institute of Standards and Technology	Cold Atoms in Optical Lattices: Pushing BEC Beyond Mean Field –To-Follow	10/14/04
Michael I Sigal University of Notre Dame University of Toronto	Renormalization Group Approach to Spectral Problems with Application to Theory of Radiation	10/21/04
Fabricio Toscano University Federal do Rio de Janeiro	Decoherence and the Quantum-classical Limit in the Presence of Chaos	10/28/04
Daniel Heinzen The University of Texas	Studies of Superfluid and Insulating States of a Bose Gas in a Lattice	11/04/04
Adrian E. Feiguin University of California at Irvine	Applications of the Density-Matrix Renormalization Group to Correlated Electron Physics	11/18/04
Andrew Wilson University of Otago Dunedin	A Collider for Ultracold Atoms – Imaging Partial-wave Interference in Quantum Scattering	11/22/04
Wojciech H. Zurek Los Alamos National Laboratory	Dynamics of a Quantum Phase Transition	12/02/04
Zbyszek Karkuszewski Los Alamos National Laboratory	Depletion of Evolving Bose-Einstein Condensates	12/16/04
John Chiaverini NIST-Boulder, University of Colorado	Quantum Information Processing with Trapped Ions at NIST	12/17/04

Appendix L

Postdoctoral Associates

Appendix L–Postdoctoral Associates

Note: CNLS postdocs, identified by an asterisk (*), are often jointly sponsored with other groups.

Group	Name	Appointment Type	Education Field
T-DO	Damski, Bogdan Fryderyk	Director's Fellow	Theoretical Physics
T-1	Bock, Nicolas	Regular	Physics
T-1	Holmstrom, Erik Karl	Regular	Physics
T-1	Ionita, Axinte	Regular	Engineering Mechanics
T-1	Plohr, Jee Yeon N	Regular	Mathematics
T-3	Evans, Katherine J	Regular	Atmospheric Sciences
T-3	Ma, Xia	Regular	Applied Mathematics
T-4	Colgan, James P	Regular	Physics
T-4	Cucchietti, Fernando M	Director's Fellow	Physics
T-4	Hakel, Peter	Regular	Physics
T-4	Hu, Suxing	Director's Fellow	Physics
T-4	Karkuszewski, Zbigniew	Regular	Physics
T-4	Ponomarenko, Sergey	Director's Fellow	Physics
T-4	Sherrill, Manolo E	Regular	Physics
T-4	Vrinceanu, Daniel	Director's Fellow	Physics
T-6	Herwig, Falk	Regular	Physics
T-6	Holz, Daniel	Feynman Fellow	Physics
T-6	Luu, Thomas C	Regular	Physics
T-6	Mihaila, Bogdan	Regular	Physics
T-6	Young, Patrick	Director's Fellow	Astronomy
T-7	Chartrand, Rick	Regular	Mathematics
T-7	Chowell-Puente, G	Regular	Biometry
T-7	Dyadechko, Vadim	Regular	Applied Mathematics
T-7	Loubere, Raphael	Regular	Applied Mathematics
T-7*	Weronski, Pawel	Regular	Chemistry
T-7	Xiu, Dongbin	Regular	Applied Mathematics
T-8	Abazajian, Kevork	Director's Fellow	Physics
T-8	Friedland, Alexander	Feynman Fellow	Physics
T-8	Marandella, Guido Alberto	Regular	Theoretical Physics
T-8	Martin, Matthew Richard	Regular	Physics
T-8	Shirman, Yuri	Feynman Fellow	Physics
T-8	Xu, Yongzhong	Regular	Physics
T-10	Blinov, Mikhail	Regular	Mathematics
T-10	Dahari, Harel	Regular	Mathematical Biology
T-10	Fischer, William M	Regular	Molecular Biology
T-10	Labute, Montiago	Regular	Physics
T-10	Lee, Hayoun	Regular	Physics
T-10*	Stajic, Jelena	Regular	Physics
T-10	Yang, Jin	Regular	Bioengineering

Group	Name	Appointment Type	Education Field
T-11*	Ahluwalia, Rajeev	Regular	Physics
T-11*	Barre, Julien C	Director's Fellow	Physics
T-11	Hruska, Marina M	Regular	Physics
T-11*	Joglekar, Yogesh N	Regular	Physics
T-11	Kaneshita, Eiji	Regular	Materials Science
T-11*	Mozyrsky, Dima V	Regular	Physics
T-11	Nussinov, Zohar	Regular	Physics
T-11	Schnell, Ilan	Regular	Physics
T-12	Asthagiri, D N	Regular	Chemical Engineering
T-12	Clark, Aurora E	Director's Fellow	Physical Chemistry
T-12*	Goupalov, Serguei	Regular	Physics
T-12	Magyar, Rudolph J	Regular	Physics
T-12	Nemeth, Karoly	Regular	Chemistry
T-12*	Piryatinski, Andrei	Regular	Physics
T-12	Diaconu, Cristian V	Regular	Chemistry
T-12	Batista, Enrique R	Regular	Physics
T-12	Peery, Travis B	Regular	Physics
T-13*	Chung, Yeo-Jin	Regular	Mathematics
T-13*	Motter, Adilson Enio	Director's Fellow	Applied Mathematics
T-13*	Patelli, Paolo	Regular	Economics
T-13*	Stepanov, Mikhail	Regular	Physics/Optics
T-13*	Ravasz, Erzsebet	Director's Fellow	Physics
T-14	Brydon, Andrew D	Regular	Applied Mathematics
T-14	Jaramillo, Eugenio	Regular	Chemistry
T-14	Welch, Paul M Jr	Regular	Polymer Science/Plastics
T-15	Markidis, Stefano	Post MS Staff Research	Nuclear Engineering
T-15	Ju, Jianwei	Post MS Staff Research	Mechanical Engineering
T-15	Lukin, Vyacheslav S	Post MS Staff Research	Physics/Math
T-15	Delzanno, Gian Luca	Regular	Plasma Physics
T-15	Jones, Christopher S	Regular	Physics
T-15	Simakov, Andrei N	Director's Fellow	Physics
T-16	Cowell, Shannon T	Regular	Physics
T-16	Rupak, Lan Tai Moong Gautam	Regular	Physics
T-16	Steiner, Andrew W	Regular	Physics
T-16	Lemaire, Sebastien	Regular	Physics
CNLS*	Huang, Chien-Feng	Regular	Controls
CNLS*	Ramaprabhu, Praveen K	Regular	Mechanical Engineering

Appendix M

Graduate Research Assistants

Appendix M–Graduate Research Assistants

Group	Name	Degree	Current Major
T-DO	Blume-Kohout, Robin	MA	Physics
T-DO	Hannafious, Brian H	BS	Mechanical Engineering
T-1	Lizarraga, Raquel Alejandra	Licentiate	Physics
T-3	Porwal, Pankaj Kumar	BS	Civil Engineering
T-3	Tonks, Michael R	MS	Mechanical Engineering
T-6	Currier, Nathaniel W	BA	Physics
T-6	O'Shea, Brian William	MS	Engineering Physics
T-6	Rockefeller, Gabriel M	BS	Physics
T-7	Bergen, Benjamin K	MS	Applied Mathematics
T-7	Bold, Katherine A	BS	Mathematics
T-7	Chitnis, Nakul R	MS	Applied Mathematics
T-7	Donahue, Christopher	BS	Cognitive Science
T-7	George, Nathan D	BS	Mathematics
T-7	Zaki, Tamer A	MS	Mechanical Engineering
T-8	Greenbaum, Benjamin D	MA	Physics
T-8	Hopkins, Asa S	BS	Physics
T-8	Newton, Gregory A	MS	Physics
T-10	Agrawal, Ashish R	BS	Mechanical Engineering
T-10	Dalwani, Anita S	BS	Engineering
T-10	Kommander, Kristina P	MS	Biology/Chemistry
T-10	Lang, Dorothy M	MS	Geology
T-10	Maljkovic, Berry Irina	MS	Molecular Biology
T-10	Powers, Kimberly Anne	BA	Mathematics
T-10	Tao, Ning	BS	Civil Engineering
T-10	Zhang, Ming	MS	Biology
T-11	Alexandrov, Boian	MS	Physics
T-11	Gaudio, Sergio	MS	Physics
T-11	Hall, David M	MA	Physics
T-12	Pauler, Denise K	BS	Chemistry
T-12	Sonnenberg, Jason Louis	BA	Chemistry
T-14	Han, Si-Ping	BS	Physics
T-14	Heim, Andrew J	MS	Applied Science
T-14	Smith, James Sherwood	BS	Materials Science and Engineering
T-15	Zuccaro, Gianluca	MS	Materials Science and Engineering

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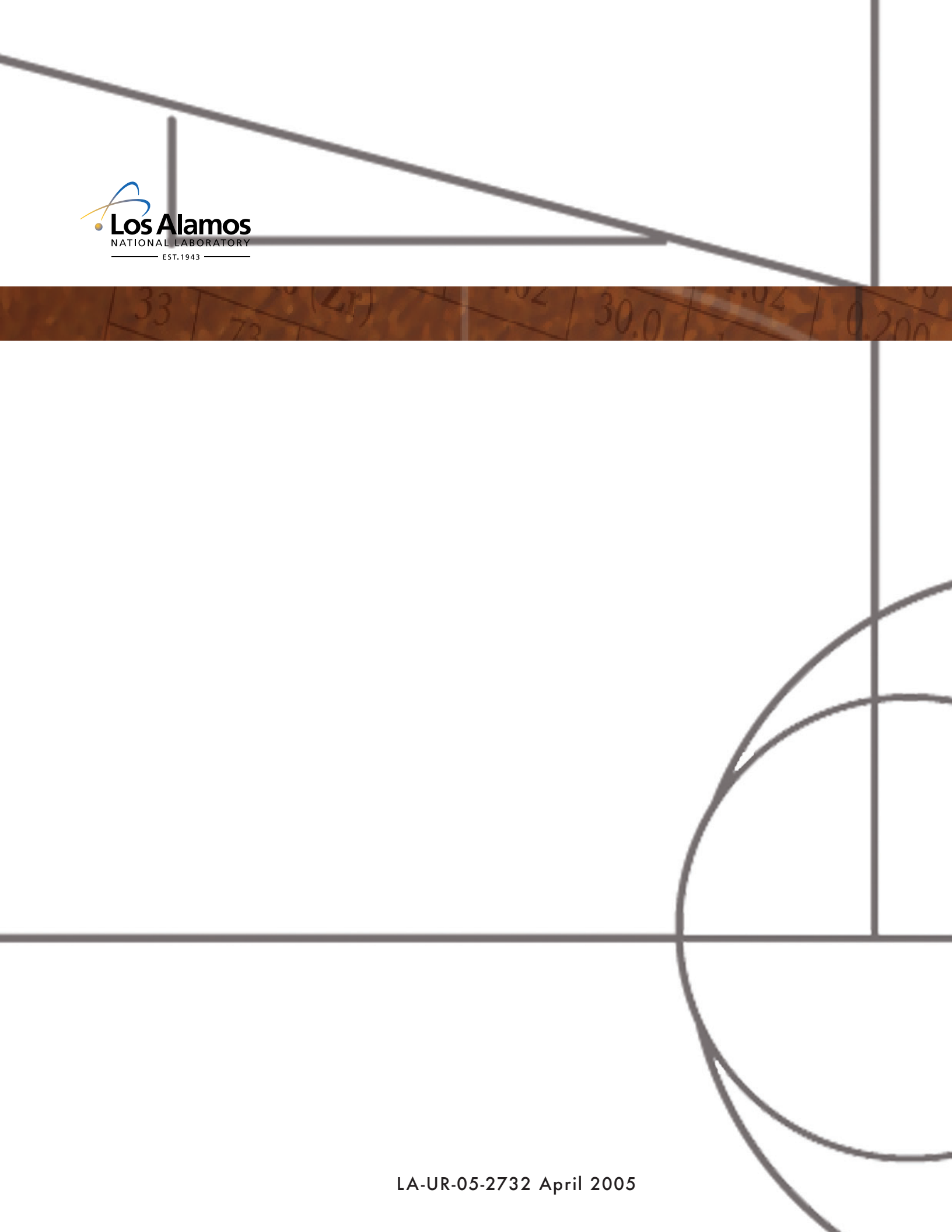

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